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1989/1990 ANNUAL REPORT

**MANITOBA CANCER TREATMENT
AND RESEARCH FOUNDATION**

1989/1990 ANNUAL REPORT

Manitoba Cancer Treatment and Research Foundation
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Table of Contents

INTRODUCTION	1
ORGANIZATION	
Board of Directors	5
Executive/Finance Committee	5
Advisory Medical Board	5
Scientific Advisory Committee	6
Board of Management	
Manitoba Institute of Cell Biology	6
Administration	7
Professional Staff	7
Department Heads	9
FEATURE ARTICLES	
A Birdseye View	13
Bone Marrow Transplantation Project	15
Chemotherapy Advisory System	16
MCTRF Expansion Project	17
DEPARTMENTS	
Epidemiology and Biostatistics	21
Gynecological Oncology	23
Hematology Laboratory	25
Information Services	26
Library	28
Medical Oncology	30
Medical Physics	33
Oncology Nursing and Technology	36
Oncology Records and Registry	37
Oncology Social Work	40
Pediatric Hematology/Oncology	42
Pharmacy	44
Psychiatric Oncology Service	45
Radiation Oncology	46
Radiotherapy Treatment Floor	47
Surgical Oncology	49
Volunteer Services	50
ST. BONIFACE GENERAL HOSPITAL	
Oncology Unit	55
PROGRAMMES	
Cancer Outreach Programme	59
Canadian Cancer Society Volunteer Services	62
Radiation Therapy Technologist Training Program	64
MANITOBA INSTITUTE OF CELL BIOLOGY	
Board Members	68
Report	70
AUDITOR'S REPORT	71



INTRODUCTION

The Honourable Donald W. Orchard,
Minister of Health

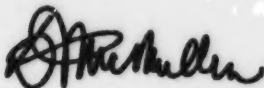
Dear Mr. Orchard:

I have the honour of forwarding the following report on behalf of the Manitoba Cancer Treatment and Research Foundation. This year marks the beginning of the planning process for an expanded cancer treatment facility at its Olivia Street location on the Health Sciences Centre campus. The need for such an expansion of both patient care and research facilities has been dictated, not only by the increasing number of patients which the centre has seen and treated, but the increasing sophistication of such treatment which has now expanded beyond the capacity of the Foundation. This building program will be made possible by a joint effort of public subscription and government funding. The public response to the need has been most encouraging and is an indication both of the need and of the support which the Foundation has amongst Manitobans.

The year has been marked by some major gains in modalities of cancer care including the beginning of installation of a 20 MEV linear accelerator and a smaller 6 MEV unit. This modernization as well as updating of treatment facilities is an essential component of maintaining state of the art therapy for our patients. In addition to this, it has been a year of major advances within the cancer research segment of the Foundation, including the continuing development of a cancer treatment advisory system which will place computer technology and computer generated advice in the Outreach centres of Manitoba.

At this time I would like to express my personal thanks to the staff of the Foundation whose dedication to patient care and to pushing back the frontiers of cancer medicine is exemplary.

Yours truly,



D. J. McMullin, C.A.
Chairman



ORGANIZATION



THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

Board of Directors

D. J. McMullin, *Chairman*
B. Adams
J. Anderson,
I. Auld (effective October 1989)
W. Bebchuk, M.D. (to June 1989)
A. Bishop, M.D.
L. Crane
L. Duncan
F. Edwards (to April 1989)
N. Hilderman (effective October 1989)
G. Home
A. M. Lysack, M.D.
J. Rodie

Ex Officio

The Honourable D. W. Orchard, *Minister of Health*
J. Foerster, M.D., *Chairman, Advisory Medical Board*
L. G. Israels, M.D., *Executive Director*

Executive Finance Committee

G. Home, *Chairman*
B. Adams
L. Crane
D. McMullin

Advisory Medical Board

J. Foerster, M.D., B.Sc., (Med.), *Chairman*
E. Baral, M.D., Ph.D.
W. Beecroft, M.D., D.D.S. (Tor.), F.R.C.S.C
D. Bowman, M.D., B.Sc. (Med), F.R.C.P.C
R. L. Cooke, B.Sc., M.D., F.R.C.S.C
A. L. Davidson, M.D., M.B., Ch.B., F.R.C.S.C
M. H. Day, B.Sc. (P.E.), M.D., C.C.F.P.
P. A. Galbraith, M.Sc., M.D., F.A.C.P.
G. V. Krepert, B.Sc., M.D., F.R.C.S.C, B.C.A.M. (Ob/Gyn),
F.G.O., S.B.C.G.O.
L. G. Israels, B.A., M.D., M.Sc., F.R.C.P.C
I. C. Peever, M.D., F.A.C.O.G., F.S.O.G.O., F.R.C.S.C
B. Weinerman, M.D., F.R.C.P.C

Scientific Advisory Committee

- H. Duckworth, B.Sc., Ph.D.
Professor, Dept. of Chemistry
University of Manitoba
- A. Froese, B.Sc., Ph.D.
Professor, Dept. of Immunology
University of Manitoba
- F. Labella, B.A., M.A., Ph.D.
Professor, Dept. of Pharmacology and Therapeutics
University of Manitoba

Ex Officio

- L. G. Israels, B.A., M.D., M.Sc., FRCPC
Executive Director
Manitoba Cancer Treatment & Research Foundation

MANITOBA INSTITUTE OF CELL BIOLOGY

Board of Management

- R. Andison, *Chairman* (to February 1989)
D. J. McMullin, *Chairman* (effective February 1989)
N. Anthonisen, M.D.
S. Berney
R. Best
A. Bishop, M.D.
M. Vaisey-Genser
A. Greenberg, M.D. — *Ex Officio*
Mr. Justice G. Hall
L. G. Israels, M.D.
J. Jamieson, Ph.D.

Administration

Executive Director — L. G. Israels, B.A., M.D., M.Sc., FRCPC

Assistant Executive Director — R. R. Publow

Executive Secretary — J. Morton

Administrative Assistant Finance — I. Birse

Administrative Assistant Personnel — D. Lamontagne

Accounts Payable — M. Gemmell

Professional Staff

The Foundation is an integral part of the teaching and research program of the University of Manitoba. Various staff members participate in the undergraduate oncology program, teach on the hospital wards, and have graduate students in their laboratories.

UNIVERSITY APPOINTMENTS

Faculty of Medicine

Department of Anatomy

Dr. G. Froese, *Associate Professor*

Department of Biochemistry

Dr. J. Wright, *Professor*

Dr. L. G. Israels, *Adjunct Professor*

Department of Human Genetics

Dr. A. H. Greenberg

Department of Immunology

Dr. E. Paraskevas, *Professor*

Dr. A. Greenberg, *Associate Professor*

Dr. D. A. Chow, *Assistant Professor*

Department of Internal Medicine

Dr. L. G. Israels, *Distinguished Professor*

Dr. E. Baral, *Professor*

Dr. D. Bowman, *Professor*

Dr. G. J. Goldenberg, *Professor*

Dr. F. Paraskevas, *Professor*

Dr. B. Schacter, *Professor*

Dr. B. Weinerman, *Professor*

Dr. L. Brandes, *Associate Professor*

Dr. M. Levitt, *Associate Professor*

Dr. H. Schipper, *Associate Professor*

Dr. A. Begleiter, *Assistant Professor*

Dr. E. Bow, *Assistant Professor*

Dr. J. Johnston, *Assistant Professor*

Dr. H. Y. P. Lam, *Assistant Professor*

Dr. T. Shore, *Assistant Professor*

Dr. J. Wright, *Adjunct Professor*

Department of Obstetrics and Gynaecology

Dr. V. G. Krepart, *Professor*

Dr. R. J. Lotocki, *Assistant Professor*

Department of Pediatrics

Dr. A. Bishop, *Professor*
Dr. A. H. Greenberg, *Professor*
Dr. J. M. Gerrard, *Associate Professor*
Dr. E. D. Israels, *Associate Professor*
Dr. M. Schroeder, *Associate Professor*
Dr. S. J. Israels, *Assistant Professor*
Dr. N. Kobrinsky, *Associate Professor*

Department of Physiology

Dr. J. Dodd, *Assistant Professor*
Dr. M. Mowat, *Assistant Professor*
Dr. A. H. Greenberg, *Adjunct Professor*

Department of Radiology

Dr. E. Baral, *Professor*
Dr. K. Malaker, *Associate Professor*
Dr. S. Shalev, *Associate Professor*
Dr. P. Dunscombe, *Assistant Professor*
Dr. G. Froese, *Assistant Professor*
Dr. P. Hahn, *Assistant Professor*
Dr. W. Huda, *Assistant Professor*
Dr. K. D. Jones, *Assistant Professor*
Dr. W. McLellan, *Assistant Professor*
Dr. R. E. Palser, *Assistant Professor*
Dr. S. E. Sayed, *Assistant Professor*
Dr. A. Sourkes, *Assistant Professor*
Dr. E. Hadzic, *Lecturer*
Dr. S. Larsson, *Lecturer*
Dr. K. Vijayaraghavan, *Lecturer*

Department of Surgery

Dr. E. Ramsey, *Professor*
Dr. B. J. Anderson, *Assistant Professor*
Dr. W. Beecroft, *Associate Professor*

Department of Social and Preventive Medicine

Dr. N. W. Choi, *Professor*
Dr. N. A. Nelson, *Associate Professor*
Mrs. P. F. Moodie, *Lecturer*

Faculty of Science

Department of Microbiology

Dr. J. Wright, *Professor*

Department of Physics

Dr. P. Dunscombe, *Adjunct Professor*
Dr. G. Froese, *Adjunct Professor*
Dr. W. Huda, *Adjunct Professor*
Dr. R. Paisner, *Adjunct Professor*
Dr. G. Sandison, *Adjunct Professor*
Dr. S. Shalev, *Adjunct Professor*

Computer Science

Dr. D. Scuse, *Professor*

Department Heads

Clinical Programs

Dr. Brent Schacter, M.D., FRCPC

Epidemiology and Biostatistics

Dr. N. W. Choi, M.D., M.P.H., Ph.D., FACE

Gynecological Oncology

Dr. Garry Krepart, M.D., B.Sc.(Med), FRCSC, FACOG

Hematology Laboratory

Mrs. Susan Tighe, R.T.

Information Services

Dr. Harvey Schipper, B.A.Sc., M.D., FRCPC

Mr. Peter West

Library

Ms. Donna Chornenki

Medical Oncology

Dr. David M. Bowman, M.D., B.Sc.(Med), FRCPC

Medical Physics

Dr. Peter Dunscombe, Ph.D., FCCPM

Nursing and Technology

Ms. Beverley Glenday, R.N.

Pediatric Hematology/Oncology

Dr. Nathan Kobrinsky, B.Sc.(Med), M.D., FAAP, FRCPC

Dr. Jon Gerrard, M.M., Ph.D., FRCPC

Pharmacy

Ms. Diana Dickof, B.Sc., B.Sc.Pharm.

Psychiatric Oncology Service

Dr. Harvey Chochinov, M.D., FRCPC

Radiation Oncology

Dr. Edward Baral, M.D., Ph.D.

Radiotherapy Treatment Floor

Ms. Joan Howes, R.T.T.

Records and Registry

Dr. Harvey Schipper, B.A.Sc., M.D., FRCPC

Ms. Gloria Hanson, CCHRA(A)

Social Work

Mrs. Betty Wong, M.S.W., R.S.W.

Surgical Oncology

Dr. Wayne Beecroft, D.D.S., M.D., FRCSC, FACS

Urologic Oncology

Dr. Eric Ramsay, M.B., BCh., FRCSC

Volunteer Services

Mrs. Elaine Hickerson, B.A.

St. Boniface General Hospital

Oncology Unit

Dr. Harvey Schipper, B.A.Sc., M.D., FRCPC

Programmes

Cancer Outreach Programme

Dr. Harvey Schipper, B.A.Sc., M.D., FRCPC

Ms. Anne Nemecek, R.N., P.H.N.

Canadian Cancer Society Volunteer Services

Mrs. Helen Morrow

Radiation Therapy Technologist Training Program

Ms. Elvira Kirk, R.N., A.C.T., C.A.E.

FEATURE ARTICLES



A BIRDSEYE VIEW

Gwen Finnen

I was late. Cancer was far from my mind. Preoccupied with work, I strode quickly into the Cancer Institute that sunny mid-October morning.

There is little anyone can do or say at the moment of shock; when a tumor is felt, or metastasis confirmed. I knew. I saw the pain in my doctor's eyes. I had been coming for regular post-mastectomy checkups for three and one-half years. His gentle hand on my shoulder conveyed a wealth of compassion. I fled blindly, choking back sobs, to the chapel.

The five day wait seemed interminable. Scenes from nursing days and the death of loved ones from cancer rolled relentlessly, like a scroll, before my eyes. I could find no escape, no peace.

A friendly lady, her neck scarred and disfigured, shared her history of breast cancer as we waited. I almost fainted. I really think I would have "cut and run" but for the fortuitous arrival of a dear nurse friend, and her firm grip on my arm.

How could I be expected to develop a relationship with new physicians and nurses in such a crisis? I remember little of that day, but I do recall clearly the smoothness and efficiency, the teamwork with which my care was arranged. I felt greatly reassured. This is just one example of the two-fold person I found myself to be - a professional observer and a very needy patient all bundled up in one.

You are faced with the inexorable ravages of disease in the treatment room. You are also faced with the indomitability of the human spirit. The crowding is overwhelming. You feel for the moment as though everyone has cancer, and you just can't win. Those of you who work

here have my utmost respect; I could not do what you do; you do it with empathy and good humor.

Everyone displayed such compassion and concern during the three weeks when my white count was in the cellar and my mouth, tongue and throat were raw. Close friends provided a cordon of prayer as I walked safely among the flu-ridden November crowds. I was at grave risk of depression: I simply had to work to dispel the despair which threatened to engulf me. The commitment of staff to have cancer disrupt my life as little as possible became an unspoken bond between us. Your accommodating appointment juggling resulted in my maintaining a full schedule. You have done more than you can ever know to keep me healthy.

Your gentle, appropriate humor, your healing touch, (do you realize what touching people you are?) help tired, frightened patients over the bumps. I was whisked from the washroom to the Wig Shoppe by an observant nurse practicing her Art. With a comfortably fitting wig I was soon feeling poised and confident once again.

January 17th was a moment of shared triumph and excitement - "Ah, this is excellent; this is wonderful; I would not know a tumor had been here. Next week we will start your radiation." I shuddered inexplicably as I saw my markings. Daily I found myself heartened by the cheerful, confident manner of the staff.

Driving home following my final treatment I pondered my equanimity, my peace of mind. Engrossed in planning a series of future programs, I had almost missed my final appointment.

God willing, I will come to this place many times for routine checkups and to

exchange friendly greetings. I will always come, though, knowing that a group of trusted, skilled physicians, nurses and technicians, who practice both the Art and the Science of their profession, stand ready and willing to bring all their skills to bear to help me should I once again pass through these deep waters.

You are the life-pulse of this place. Working in concert you have made me feel valued and respected. Most of all, you have given me hope. You have managed this in spite of severe time and

space constraints. You minister better than you know!

...

Gwen Finnen is a graduate of the WGH school of nursing. She presently works as educational director for the Society for Depression and Manic-Depression of Manitoba, of which she is a co-founder.

The full version of "A Birdseye View" was published earlier in the *Oncology Nursing Newsletter* by Gwen; I am delighted that she has accepted our invitation to reprint it here. — D. Bowman.

BONE MARROW TRANSPLANTATION PROGRAM

A Bone Marrow Transplantation Program was approved in Manitoba in 1989. The Manitoba Cancer Treatment & Research Foundation and Health Sciences Centre have worked cooperatively to begin this procedure for Manitobans requiring a bone marrow transplant.

Prior to the approval to establish a program in Manitoba, an arrangement had been made whereby adult Manitobans received bone marrow transplant at the Vancouver General Hospital. This transplantation out-of-province was required because of the lack of resources available in Manitoba to carry out such a procedure. Prior to

the arrangement with the Vancouver General Hospital, adult citizens in Manitoba were referred to a number of centres in both Canada and the United States.

The referral out-of-province for this procedure was also carried out for children.

With the commitment to establish a bone marrow transplantation program in Manitoba, recruitment has been initiated to put in place the health care professionals required to undertake this procedure. Plans are underway for the first bone marrow transplant in Manitoba to be done in the fall of 1990.



CHEMOTHERAPY ADVISORY SYSTEM

The Chemotherapy Advisory System (CAS) is an expert system that will assist oncologists to prepare comprehensive chemotherapy treatment plans/protocols for subsequent use of chemotherapy at various treatment locations. At the treatment location, CAS will allow entry and maintenance of patient-specific and treatment-related information such as clinical test results, physical observations, progress notes, and treatments administered. Based on this information, CAS will then apply the oncologist expertise resident in the treatment plan and generate treatment modification advice for use by the professional administering the chemotherapy. The advice will be patient-specific and relate to toxicity recognition and drug dosage modification and scheduling. CAS will also sort and report information required to support research and clinical trials.

The development of CAS is a Manitoba Cancer Treatment and Research Foundation (MCTRF) project in partner-

ship with Price Waterhouse and collaboration with the University of Manitoba and the National Research Council of Canada. The project has received funding from the Canada/Manitoba Communications and Cultural Enterprises Subsidiary Agreement which is administered by Communications Canada.

The Treatment Plan Builder will allow qualified health care professionals to transfer the knowledge contained in a treatment plan document to a knowledge base. The output of the Builder will be Protocol Knowledge Packets, each packet containing a complete validated and verified treatment plan. The Builder will be tested at MCTRF. The Treatment Plan Advisor will, in its initial stand-alone implementation, assist Outreach Centre non-specialist health care professionals in the administration of chemotherapy treatment plans. The Advisor will be tested at MCTRF and subsequently at Outreach Clinics.

MCTRF EXPANSION PROJECT

The need for additional space for both service and research was documented in February, 1988 in a letter to the Manitoba Health Services Commission. At that time, the need for additional space for:

- chemotherapy administration;
- surgical clinics;
- radiotherapy clinics;
- pharmacy;
- breast screening;
- physicians' and nurses' offices;
- outreach program;
- records and Registry; and,
- record storage

was delineated. In a communique to the Manitoba Health Services Commission, the position of the Board of the Manitoba Cancer Treatment & Research Foundation, as well as the Board of the Manitoba Institute of Cell Biology was clarified. Both Boards indicated a willingness to share the cost of expansion with government. Preliminary work was done with the assistance of the Health Sciences Centre Planning Department and an architectural consultant. After considerable discussion, it was decided to consider an expansion above the Foundation structure that had been built in 1963. As the planning for the needs of all departments became focused, it was clear that the needs which would carry the Foundation to the turn of the century would not be adequately met by vertical expansion over the 1963 building.

At the same time the Foundation was considering its requirement for additional space, the Health Sciences Centre received approval from government to build the psychiatry health centre to house the patient area and administrative staff associated with the Department of Psychiatry and its inpatient wards. This opened up the possibility of the Cancer Foundation expanding next to its existing buildings and parallel to McDermot Avenue. The Board of the Foundation received approval from the Health Sci-

ences Centre for use of this space contingent upon the completion of the psychiatry health centre project and the decanting of those functions that currently occupy the nurses' old residence. On the basis of the availability of the space running parallel to McDermot Avenue, the Manitoba Cancer Treatment & Research Foundation re-opened communication channels with government and the Health Sciences Centre. On April 12, 1989 the Chairman of the cancer Foundation Board received a letter from the Minister indicating that the Manitoba Cancer Treatment & Research Foundation expansion project had been placed in the five-year capital program estimates of the Manitoba Health Services Commission.

The Foundation began its initial documentation phase. As the scope of the project had increased quite significantly, the Manitoba Health Services Commission requested additional detailed information so that an assessment could be made of the space and program requirements to facilitate the Foundation's activities to the turn of the century.

Since these initial discussions, significant work has been undertaken by staff members and members of the Board of the Manitoba Cancer Treatment & Research Foundation to prepare a Role Statement document. This has been aided by way of discussions with staff members of the Manitoba Health Services Commission, staff members in the office of the Minister of Health, and with various officials at the two major teaching facilities, the Health Sciences Centre and the St. Boniface General Hospital. In March 1990, the Foundation Chairman received a letter from the Minister of Health approving the expansion project of the Manitoba Cancer Treatment & Research Foundation to proceed through to the completion of the functional programming stage.



DEPARTMENTS



EPIDEMIOLOGY AND BIOSTATISTICS

Departmental Activities

The discipline of Epidemiology is a branch of medical science which studies distribution, dynamics and determinants of diseases such as cancer, in a community.

The study provides us with clues to etiologies and bases for prevention of such diseases. Epidemiology was instrumental in the control of many infectious diseases over the centuries and has become an important contributor to cancer control programmes around the world.

In 1968, the programme of Epidemiology and Biostatistics was established in the Manitoba Cancer Treatment and Research Foundation with a view to furthering the establishment of preventive measures against cancer and to facilitating data storage and retrieval systems in the registries of cancer patients and cytology screenings for epidemiological, statistical and evaluation studies. The programme was one of the first of its kind in Canada and has resulted in significant contributions to the cancer control programmes in the province.

The provincial registries of cancer patients and cytology screenings have been primary sources for epidemiological studies and have been steadily improved over two decades and considered among the better registries in the world.

The scope of the departmental research programme consists of descriptive and analytical epidemiological studies on cancer among certain ethnic groups, particularly immigrants and their descendants, native population and populations residing in remote areas of the province as well as environmental and industrial impact on urban and rural communities.

The ongoing projects are as follows:

I. Epidemiology:

1. Case-control study of lung cancer and radon exposure.
2. Childhood leukemia and low frequency electromagnetic field exposure.
3. Case-control study of pesticides use and health.
4. International study of brain tumours among adults: a case-control study.
5. International study of brain tumours among children: a case-control study.
6. Cancer among registered Indians in Manitoba: Linkage of two data bases.

II. Biostatistics:

1. Linkage of Manitoba Registered Indians data base and the Manitoba Cancer Registry data base.
2. Investigating and developing meta-analysis procedures which provide overviews of clinical trials in particular where survival is one of the outcomes of interest.

The details of the listed research activities are reported in the research activities portion of the annual report.

One of our activities is to give consultation services to other departments of the Foundation as well as researchers in the province. We receive many requests for data analyses and statistical/epidemiological investigations from various Manitoba government and non-government agencies/individuals such as provincial and municipal departments of health, Workplace, Safety and Health and many others including private citizens.

While the Director of this department has actively been engaged in international

collaborative activities over the years, he has continuously been involved with consulting work with the World Health Organization on behalf of a number of governments on cancer prevention and control.

Last but not least, the professional staff of the department have also been engaged in the University of Manitoba undergraduate, graduate and resident educational programmes in epidemiology and biostatistics involving Community Medicine and also radiation oncology training programmes.

The Director has co-chaired along with Professor Evelyn Shapiro, the Colloquium series Programme of the Department of Community Health Sciences of the University. The Director also represents the department on the University Faculty of Graduate Studies Council.

Hence, the department has fully participated in research, consultation and educational programmes of the Foundation.

GYNECOLOGICAL ONCOLOGY

ORGANIZATION

The Section of Gynecologic Oncology is represented at the Manitoba Cancer Treatment and Research Foundation as well as at the St. Boniface Oncology Unit at the Health Sciences Centre and St. Boniface General Hospital. Members belong to the Section of Gynecologic Oncology of the Department of Obstetrics, Gynecology and Reproductive Sciences of the Faculty of Medicine. Clinics are held four half days weekly at the Manitoba Cancer Treatment and Research Foundation and three half days at the St. Boniface Oncology Unit. Close liaison is maintained with the Radiotherapy and Medical Oncology Divisions as well as with urologic and surgical oncologists at both institutions. Referred patients are seen at both Oncology units and appropriate consultations, if needed, with other divisions. Hospital admissions are at the Women's Hospital or at St. Boniface Hospital. An Oncology Unit as well as a high-dependency area and a dedicated in-patient chemotherapy nurse are available at the Women's Hospital with similar facilities at St. Boniface Hospital on the Gynecology Service.

TEACHING

Various levels of teaching are offered by the Gynecologic Oncology Service. A two-year postgraduate Fellowship Program was established in 1981. The Royal College of Physicians and Surgeons of Canada has recognized Manitoba as one of two training centers in Canada for Gynecologic Oncology, now recognized as a sub-specialty by the College. Currently the Program has two Fellows, Dr. M. Heywood, graduating in June 1990, and Dr. M. Fung Kee Fung, graduating in June of 1991.

Residents in their third and fourth year of Ob/Gyn rotate for 3 months through the Section as part of their training, as well as Medical Oncology and Radiotherapy residents. Tumor Conferences are held weekly at the Women's Hospital and St. Boniface Hospital with much appreciated pathology backup by Dr. M. Paraskevas and by Dr. G. Vadas. Reviews of current subjects in Gynecologic Oncology or pertinent clinical cases are presented for all residents, medical students, interns and staff.

The Section is responsible for chemotherapy as well as surgery. Bowel as well as urinary complications, as they relate to gynecologic malignancy or its treatment complications, are handled at both teaching hospitals. Full support is available from all subspecialty areas, including T.P.N., Infectious Disease, Surgery, Urology and Physiotherapy. Full access to social workers, chaplaincy service, pharmacy, occupational therapy and dietetics is available, and a weekly nursing conference with all support staff represented is held. More than 1,200 in-patients were admitted in 1989 at both the Women's Hospital and St. Boniface Hospital units.

SECTION ACTIVITIES:

Section activities continue to be active locally, nationally and internationally. During the last year section members have had the privilege of serving in the following capacities:

1. President — Felix Rutledge Society
2. Executive Member — Gynecologic Oncologists of Canada
3. President Elect — Gynecologic Oncologists of Canada
4. Council Member — Canadian Colposcopy Society

5. Member of the Society of Obstetricians and Gynecologists of Canada, Oncology Committee
6. Treasurer — Society of Obstetricians and Gynecologists of Canada
7. Chairman, Written Exam Committee in Ob/Gyn — Royal College of Physicians and Surgeons of Canada
8. Vice Chairman, District VI American College of Obstetricians and Gynecologists

Active participation on various NCIC committees continues, and current protocols, mainly in ovarian cancer, have been accrued and new protocols in

endometrium, cervix and sarcomas are in the preparatory stages.

Within the Section current active research interests include:

- a) Hemodilution in major gynecologic surgery
- b) Surgical staging of endometrial carcinoma
- c) Uterine and ovarian sarcoma chemotherapy
- d) Flow cytometry in ovarian and endometrial carcinoma
- e) The role of chemotherapy in ovarian tumors of low malignant potential.

SECTION OF GYNECOLOGIC ONCOLOGY STATISTICS

Manitoba Cancer Treatment & Research Foundation and St. Boniface Oncology Clinic

Clinic Visits

	New Patients	Follow-up Visits	Total Patient Visits
1987	303	3,465	3,768
1988	408	3,391	3,799
1989	437	4,006	4,443

Colposcopy Clinics

1989	902	3,077	3,979
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Hospital Admissions — 1989

	Health Sciences Centre		St. Boniface Hospital		
	Inpatient	Day Care	Inpatient	Day Care	Total
Surgical	338	73	114	128	653
Non-surgical	429		306		735
Total	840		548		1,384

HEMATOLOGY LABORATORY

On the main floor of the Manitoba Cancer Foundation, located conveniently between the Radiotherapy and Chemotherapy Clinics, is the Hematology Laboratory. All routine hematological investigations including bone marrow differentials for the out-patient population of the Foundation are done in the lab. The presence of the Laboratory in the clinic area enables a preliminary report to be available to the physician within five minutes of obtaining a blood sample. Therefore, it is often possible for Chemotherapy and Radiotherapy to pro-

ceed on these patients without delay. As a large percentage of these patients have abnormal blood profiles, visual differentiation of cell types and confirmation of values obtained by electronic counting is necessary. The number of patient visits to the laboratory in 1989 was 20,885 as compared to 20,182 in 1988. Unit work values in 1989 totaled 602,485 as compared to 577,611 in 1988.

Two employees of the Hematology Laboratory, Dianne Gamble and Susan Tighe, were honored in 1989 for twenty-five years of service to the Foundation.



INFORMATION SERVICES

The primary responsibilities of the Information Services Department are to support the Records and Registry Department's information systems, provide computing support to other Manitoba Cancer Treatment and Research Foundation departments and implement a computerized Outreach Cancer Programme patient information management system. During the 1989/90 fiscal year, the Information Services Department has concentrated its attention and resources on Outreach Programme activities.

Records and Registry Department: Information Systems

Written in the COBOL programming language and implemented on a Prime 2550 Minicomputer in 1982, the Patient Information System and the Registry Information System comprise the Records

and Registry information management resource. The Patient Information System controls master patient index transactions, which include patient registration and patient demographic inquiries/updates. The Registry Information System manages tumor information for all cases that have been reported to the MCTRF since 1937.

The Information Services Department manages the Records and Registry computer-based information resource, facilitating tumor data extractions and reporting (cases, incidence and mortality).

MCTRF Departments: Computing Support

The Epidemiology Department is another major user of the Information Services minicomputing resource. Statis-



tical analysis software (SAS) and related research projects, programs and datasets reside on the minicomputer. Micro-computing support is provided on an informal basis.

Outreach Programme: Computerized Patient Information Management System

When, completed, the Chemotherapy Advisory System will facilitate the exchange and processing of information which is essential to the effective management of cancer patients in rural Outreach Centres. Artificial intelligence concepts are employed by the two key modules of the Chemotherapy Advisory System: the Treatment Plan Builder and the Treatment Plan Advisor. The Treat-

ment Plan Builder, with its detailed knowledge of the architecture of treatment plans, will work with oncology care professionals to create Protocol Knowledge Packets, which capture the requirements of complex cancer treatment regimens. The Treatment Plan Advisor will use the information contained in a Protocol Knowledge Packet to assist non-specialist Outreach Centre health care professionals in the collection and interpretation of treatment data. Oncologists are scheduled to evaluate the robustness of the Treatment Plan Builder and the Treatment Plan Advisor in June, 1990. Outreach health care professionals will evaluate the ease-of-use and consistency of advice-giving of the Treatment Plan Advisor in July, 1990.

LIBRARY

The Manitoba Cancer Treatment and Research Foundation Library serves the information needs of all the staff of the Foundation. The Library's collection consists of current essential journal and book material, and is maintained to support the Foundation's research and patient treatment and care programs. The collection is accessible to staff twenty-four hours a day. This has been arranged by the installation of a digital combination lock on the Library door, to which all staff have the combination.

Computerized literature searches are provided on demand to supply information, lists of references to published literature and full text retrieval of abstracts to articles. The data bases searched cover fields in medicine and biomedicine, toxicology, chemical abstracts, registry of toxic effects of chemical substances,

state-of-the-art cancer treatment information, international cancer research data bank, and health planning and administration. During the 1989-1990 fiscal year the Library provided 248 online Medlar searches and 1609 Reference update searches.

The Library's holdings at the end of the 1989-1990 fiscal year were 3398 books, 3177 bound journals, and 84 active subscriptions to journal material. The Library also houses a complete collection of Cumulated Index Medicus from 1960 to date, as well as Current Contents for the current year, to ensure current awareness of the literature.

The library provides access to material not in its collection through inter-library loan. It requested 290 interlibrary loans outside of the province this past fiscal year. The library filled 269 requests



from other Health and Research Centres across Canada. Within the Manitoba borders the Foundation Library has a reciprocal arrangement for local lending through the Manitoba Health Libraries Association.

The Library Committee of the Manitoba Cancer Treatment and Research Foundation meet regularly to carefully

monitor the development of the Library collection. All Departments have representation on the Library Committee. Members of the Library Committee for the past fiscal year have been Dr. L.G. Israels, Dr. Michael Mowat, Dr. L. Brandes, Jan Lutz, Ewa Papiez, Dr. Per Hahn, and Donna Chormenki.

MEDICAL ONCOLOGY

The MCTRF Department of Medical Oncology's prime objective is to provide exemplary patient care for patients with neoplastic diseases in Manitoba through ambulatory MCTRF clinics, the MCTRF Outreach program, and in-patient care during hospital admissions for our patients.

All department members are also geographic full-time professional staff of the University of Manitoba and have major undergraduate and post-graduate teaching roles; they conduct both basic scientific and clinical research related to cancer. For details of research activities, please consult the separate MCTRF (1989) Scientific Report, which outlines the basic research programmes being conducted by medical oncologists contributing as senior staff of the Manitoba Cell Biology Institute; and the clinical trial programmes

being conducted by medical oncologists through the MCTRF Clinical Investigations Office, directed by Dr. M. Levitt. Further exemplifying their "matrix" roles, various department members serve also as Executive Director (MCTRF), Director of Palliative Care (Health Sciences and Municipal Hospitals), Director of Clinical Programs (MCTRF), Chairman of Research Committee (University of Manitoba Department of Medicine), and Section Head of Hematology-Oncology (University of Manitoba and Health Sciences Centre). Clinical, teaching and research programmes are also intimately integrated with MCTRF medical oncologists based at St. Boniface General Hospital (See St. Boniface Oncology Unit separate report).

During fiscal 1989 (April 1, 1989 – March 30, 1990), MCTRF medical





oncologists saw 604 new patients and provided 7,132 follow-up visits for care at the Foundation clinics. They also provided approximately 600 consultations to in-patients at the Health Sciences Centre. The 1989 figures represent a 48% increase over 1988 for new patients, and a 12% increase in follow-up visits with unchanged numbers of participating oncologists or clinic facilities for patients.

Thus the announcement of the MCTRF building expansion during 1989 (See feature article) was welcome news, indeed, representing the first major addition to the Foundation in a decade. Medical oncology looks forward to participating with all Departments in the related major functional plan development which accompanies the physical expansion.

The department of Medical Oncology provides ambulatory care for the adult

cancer patients referred by other physicians throughout the Province. During 1989, some 19 "half-day" (generally 4-6 hour) clinics per week provide patient care by individual oncologists supported by nursing, clinical investigations office and department of Social Work staff. For a great many patients, required care is multi-disciplinary with radiation oncology and surgical oncology sharing critical expertise with us; multi-disciplinary (conjoint) clinics for several disease sites (breast cancer, lung cancer, head and neck neoplasms, central nervous system neoplasms and soft tissue sarcomas) also provide coordinated care.

Some areas of particular endeavour during 1989 include the following:

- (1) A Manitoba Bone Marrow Transplantation program has been planned and approved by Government, and is described in detail elsewhere in this

Report. Essential recruitment of nursing personnel, a Director, and additional medical oncology personnel will be sought to allow implementation in 1990.

(2) Medical oncologists are actively participating in the development of a MCTRF artificial intelligence computer-based "Chemotherapy Advisory System" which is the subject of another feature article elsewhere in this Report.

(3) The year 1989 constituted the first full year of operation of a geographic dedicated in-patient unit, located on ward D6 of the Health Sciences Centre, opened in September 1988 (See 1988 MCTRF

Annual Report). The unit provides a environmentally protected (high-efficiency particle air filtration) sanctum for immunocompromised cancer patients requiring intensive chemotherapy.

(4) A substantial factor in the above-noted increases in patient visits is the application of "adjuvant" drug therapy for "early" cancers at the time of their primary treatment with surgery or radiotherapy. Increasingly wider use of such adjuvant chemotherapy in two of the commonest adult neoplasms, breast and bowel cancer, is extending the probability of cure.

MEDICAL PHYSICS

In the Physics support of Radiotherapy the main activity of the year was commissioning the KD-2 dual energy linear accelerator. This absorbed considerable effort from May onwards, with the first treatment being performed in November 1989.

An on-line portal imaging system, one of the first of its kind in the world, was developed in the Department and licensed to the manufacturer of the accelerator for installation on the KD-2 for clinical evaluation.

The computerized treatment planning system underwent an extensive upgrade, and the relatively new technique of three-dimensional planning was initiated, using software partly developed in the Department in collaboration with the computer manufacturer.

Members of the Department were also heavily involved in planning for future expansion of physical facilities and for the implementation of new treatment techniques. In particular, the proposed linear accelerator installation at St. Boniface has been the subject of many planning sessions. At the end of 1989 the major decisions concerning this installation had been made.

With approval to establish a Bone Marrow Transplant programme in Manitoba, consideration was given to the Total Body Irradiation aspect of this treatment. It was necessary to identify the optimum treatment schedule and to select the additional dosimetry equipment necessary to establish such a programme. Treatments with Total Body Irradiation should commence in late 1990.



Members of the Department responsible for the support of Medical Imaging activities within the Province continued to contribute to the acquisition and ongoing quality assurance of sophisticated imaging equipment. In addition to supporting the installation of several items of Nuclear Medicine equipment and digital radiography units, involvement has continued in establishing the St. Boniface Magnetic Resonance Imaging Laboratory. This is scheduled to commence operation in 1990. Continued support has been provided for imaging activities at the major Winnipeg teaching hospitals while an increasing number of requests for assistance is being received from other hospitals within the Province, including Brandon and Dauphin.

The Radiation Protection Service operating out of the Department continued with its comprehensive survey activity throughout the year.

Although the primary mandate of the staff of the Electronics and Machine Shops is to ensure the safety and reliability of clinical equipment, limited time was available to pursue the development of novel techniques for clinical use. Of the projects underway in 1989, mention should be made of the portal imaging system, a portable infusion pump for the administration of analgesics, and a micro-processor controlled dispenser for radio-pharmaceuticals.

Education of potential staff for both Radiotherapy and Radiology continued to absorb considerable effort. The training of Radiotherapy Technologists both from Manitoba and Saskatchewan took place in the classroom and during rotations through Treatment Planning/Simulator and the Mould Room. Residents in the three disciplines of Radiotherapy, Radiology and Nuclear Medi-



cine require an extensive Physics background. The Department of Medical Physics contributed to the education of these individuals through lectures, seminars and tutorials throughout 1989.

Scientific staff within the Department are affiliated with the Faculty of Graduate Studies at the University of Manitoba, and organize a graduate programme in Medical Physics. In 1989 as part of this programme two half courses were deliv-

ered and six graduate students were being supervised by members of the Department.

Professional development of the staff is strongly encouraged. Two technologists in the Treatment Planning/Simulator area were awarded Advanced Certification in Radiotherapy Technology and two physicists were granted membership of the Canadian College of Physicists in Medicine.

ONCOLOGY NURSING AND TECHNOLOGY

Oncology Nursing and Technology should be a potent force for improvement in the care of cancer patients. With this focus, the nurses and technologists at the Manitoba Cancer Treatment and Research Foundation have been committed to providing the best in treatment, support and education for the ever-increasing patient population and their families.

While this year has not seen the implementation of new programs, the Oncology Nursing and Technology staff have continued to stay abreast of current changes in technology by attending relevant conferences, keeping up to date with new literature, and participating in oncology-related groups. They have been instrumental in promoting research, education and support endeavors, and remain actively involved in such programs as "Kids Can Cope" and "MONIG", the

Manitoba Oncology Nurses Interest Group.

While all of us are looking forward with great enthusiasm to the new building, we realize that bricks and mortar, alone, do not make a great facility. Programs are only as good as the staff who implement them. The efforts, enthusiasm and interest of all Nursing and Technology staff have given MCTRF a well-deserved reputation for excellence in patient care.

As we move toward the new building program, the Nursing and Technology staff are anxious to participate in the planning process for space requirements and program development.

The future looks exciting and challenging, and all of us are prepared to meet the challenges.

ONCOLOGY RECORDS AND REGISTRY

The Records and Registry Department is the health information processing center for the Manitoba Cancer Treatment and Research Foundation. A fully integrated, computerized environment, its organizational configuration and activities through 1989 were as follows:

Health Records Service

This unit's scope of service comprises the following:

- Health record filing, control and retrieval
- Medical transcription services
- Patient registration, documentation, and data collection
- Intake co-ordination (new patient referral processing)
- Coordination and documentation of diagnostic reports

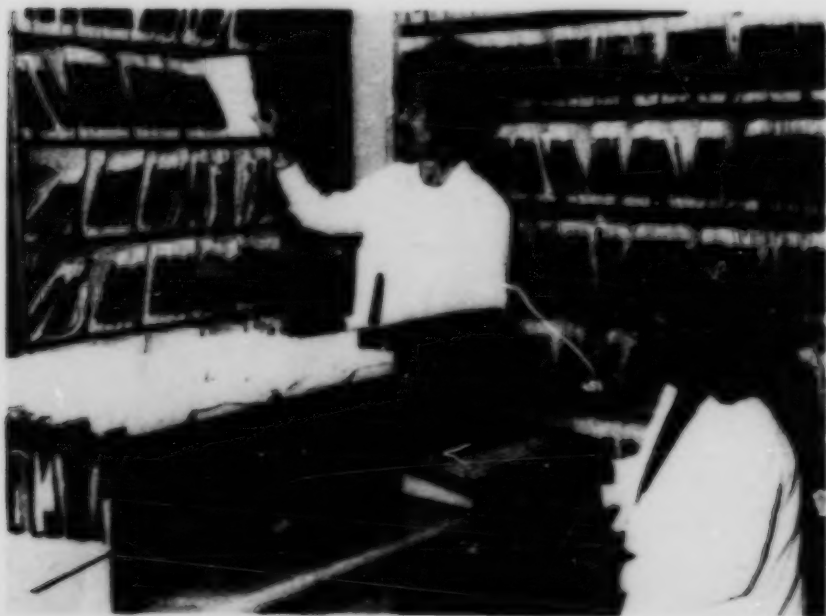
- Release and distribution of patient information
- Reception and switchboard services
- Courier services/mail processing

Throughout 1989, our Health Records Services underwent numerous technological and systems changes to enhance service provided to the Foundation's health care team.

The installation of a digital dictation system in 1989 enabled the Department to furnish a more efficient and cost-effective transcription service. User satisfaction has increased significantly as an important benefit.

Centralization of the record location index system was achieved, in preparation for implementation of a computerized chart locate system.

The acquisition of a facsimile unit has



assisted significantly with the quick transfer of essential patient information.

The Forms Committee, initiated in 1988, designed, evaluated and implemented 12 health record forms in 1989. The most significant of these was a Consent to Treatment form, which necessitated Foundation-wide input in development and implementation.

Efforts continue to develop a useful, realistic and comprehensive workload measurement tool which will provide internal planning and evaluation assistance, while allowing comparison to similar jurisdictions.

The addition of evening file control and transcription staff effected considerable positive impact on record processing and transcription turnaround times.

Central Cancer Registry

The Foundation has been legally mandated since 1937 to collect, register

and maintain data on all cancer cases for the Province of Manitoba, with a view to providing:

- a) an accurate cancer incidence data base for health care planning and quality assurance,
- b) a research data base for detailed study of malignant disease (including epidemiological studies and health care delivery analyses).

Data sources include: Cytology and Pathology Departments, the Department of Vital Statistics, the Manitoba Health Services Commission's Hospital Abstracting System, individual physicians' offices and clinics.

The Foundation's Epidemiology and Biostatistics Department remains the largest single user of Registry data. The remainder of users consists of the health and research communities, government, business and the public, which are increasingly interested in cancer incidence



rates as they relate to causative factors and prevention. The integration of Registry and treatment record data within this population-based Registry provides approved researchers with a valuable comprehensive database.

The Registry continues to contribute yearly data to the National Cancer Incidence Reporting System at Statistics Canada, through which data is forwarded to the International Association of Cancer Registries, which publishes world cancer statistics. Efforts continue through the National Cancer Registries Association towards development of a population-based Canadian Cancer Registry.

In 1989 three representatives from the Registry attended a National Registries Technical Workshop, sponsored by the National Cancer Registries Association, and hosted by Statistics Canada in Ottawa. Data comparability and workload measurement systems were discussed with a view to promoting standardization across Canada.

Consequently, internal reviews were undertaken in the Manitoba Registry to evaluate the quality of coding and registration in six specific areas: multiple primaries, cervix, endometrium, breast, lung and colon. As a result, coding definitions were clarified in a number of sites, and data collection systems enhanced.

Requests for information processed through the Registry in 1989 included:

- 1) Provision of disease-related data for diagnostic clarification and treatment planning 1,085
- 2) Basic statistical requests (published incidence and/or mortality rates, etc.) 10
- 3) Studies and Research Projects:
 - a) Statistical requests requiring custom tabulation and/or case ascertainment 68

b) Studies: requiring technical assistance	6
c) Studies on-going from previous years	8
d) Internal Quality Assurance reviews	6
TOTAL	1,183

St. Boniface Unit

Our satellite Health Records and Registry Unit continues to provide corresponding services to our St. Boniface Oncology Department. The unit experienced an increase in demand for services as the St. Boniface Unit takes on a greater proportion of patient load.

This increase is expected to continue with the anticipated installation of new radiotherapy treatment units, which will necessitate relocation of the department. The new Records Unit will provide more efficient working and records storage space.

The installation of a new centralized dictation/transcription system in 1989 was a major event within the department. After the initial training, installation and transition periods, the system proved to have many time-saving and quality assurance benefits. The upcoming installation of word processing equipment will be the next stage in the upgrading of our transcription services.

Representation on the Manitoba Cancer Treatment and Research Foundation Forms Committee assured that St. Boniface Oncology health records forms remained consistent with those utilized at the MacCharles Unit.

ONCOLOGY SOCIAL WORK

The purpose of Oncology Social Work is to enable patients and their families to make use of medical and psychosocial services in order to achieve their fullest possible physical, emotional, spiritual and social well-being. Social Work recognizes that a patient's illness has a tremendous impact on the family. We therefore believe in the provision of social work services not only to the patients, but also to their families and/or significant others to prevent unnecessary stress and disintegration. These services are provided to patients and families in consultation with physicians and other professionals.

During the year under review, this department continues to provide social work services to those patients/families who have been referred. Referrals come from patients/families themselves, phy-

sicians, nurses, other professionals within the hospital complex, and our colleagues in the community.

Counselling services continue to demand a greater percentage of our time. These services are provided to individuals, couples or families. Patients and families often have great difficulties coping with their initial diagnosis and other stages of disease development. During this extremely stressful situation, there is often the disbelief and misunderstanding of what has been said. Many require brief but intensive counselling to help them cope with the initial stage of shock. Others require counselling to help maintain their family's emotional equilibrium during the period of remission, not knowing how long this blessed time will last. There are those in the terminal stage who require counselling in anticipation of their impen-



ding death and subsequent bereavement counselling for their families. We continue to recommend early consultation so that our services will be known and available to those in need. Last-minute crisis consultation is not always as effective as we wish it to be.

As long term treatments frequently interrupt productive employment, many patients do not have sufficient resources to support themselves during the length of their illness. Resource counselling is then required by those who experience financial difficulty. After proper assessment, they are referred to the appropriate financial agencies in the community for assistance. In order to help patients achieve maximum benefits from the health care system, they are often referred to other agencies in the community. Many referrals are also made to other departments such as Home Care, Physiotherapy, Occupational Therapy, Chaplaincy, Dietary and Psychiatry within the medical complex.

However, in a majority of cases, we continue to be the prime therapist or case manager. Less frequently other disciplines will take on the case management function. Interdisciplinary conferences are often called to share information as well as formulate treatment plans. In these cases, patients and their families often find it confusing and frustrating having to deal with so many people. Social work staff frequently become the facilitators of these meetings.

We frequently get involved in discharge planning with our in-patient population. It is very difficult for many patients to accept the fact that they could no longer function independently in their home. They and their families will therefore need counselling to help sort out alternative cares. Some may be able to function with home care services. Others may need palliative care setting such as Princess Elizabeth Hospital. A great many patients are reluctant or ambivalent about the Princess Elizabeth Hospital setting. Ongoing counselling is required for them as well as for their families before they finally accept this recommendation.

More recently, we have been involved in the "Kids Can Cope" program, a group program designed for cancer patients' children to get support.

The facilitators of this program come from social work and nursing staff of the St. Boniface Oncology Unit and the Manitoba Cancer Foundation.

Recently there has been an increasing demand from the patient population for help with relaxation and visualization to cope with anxiety. We have tried our best to meet some of that need.

Our department has been a field placement for social work students for many years. We have also been involved in the clinical training for students of other disciplines.

PAEDIATRIC HAEMATOLOGY/ONCOLOGY

The year 1989 saw major changes in the Section of Paediatric Haematology/Oncology. Dr. Nathan Kobrinsky left in August to go to Saskatoon where he is now Head of the Section of Paediatric Haematology/Oncology. Dr. Shirley Scott joined the staff January 1, 1990, but was helping in a significant way in the months immediately after Dr. Kobrinsky's departure. Our involvement with the Children's Cancer Study Group continues as does our involvement with the Canadian Multicentre ITP Trial, and a study of varicella vaccine for children with acute lymphoblastic leukemia. Just beginning is a Canada-wide study of the association of childhood leukemia and electromagnetic radiation. The year 1989 was busy, with 281 new patients evaluated for the possibility of paediatric cancer or various hematological conditions, and 2151 follow-up visits (Table 1).

TABLE 1
Outpatients seen in the Pediatric Hematology/Oncology Clinic

Total Visits			
Visits	New	Follow-up	Requiring Physician Participation
1978	126	1,560	1,756
1979	136	1,742	1,859
1980	107	1,584	1,688
1981	91	1,631	1,728
1982	149	1,858	2,007
1983	203	1,723	1,929
1984	197	1,943	2,140
1985	204	1,889	1,093
1986	223	2,057	2,290
1987	274	2,148	2,422
1988	266	2,367	2,633
1989	281	2,151	2,432

Major programs in 1989 included four camps for the pediatric oncology patients and their families funded by the Cancer Society. In 1989 the first national conference for families of children with cancer was held in Edmonton. Pat Pruden and Rochelle Litvack, a parent, presented papers on the school program.

The good news in the treatment of children's cancer is the striking improvement that has been made in decreasing mortality over the last thirty years. While the numbers of cancers in children has remained roughly constant, during this period (see Table 1), the number of children dying from cancer has decreased dramatically from 262 between 1959 and 1968 to 96 between 1979 and 1988. This is remarkable progress, but we still have a long way to go, with 96 children dying from cancer in the latter 10 years. It also needs to be remembered that the more extensive treatment that we use now has increased the overall intensity and length of current treatment given to these children.

Cancer Diagnosis and Mortality 1959-1988

	No. of children age 0-14 diagnosed with cancer	No. of children age 0-14 dying from cancer
1959 - 1968	409	262
1969 - 1978	448	176
1979 - 1988	352	96

With more children with childhood cancers being cured and doing well, it has become critical to maintain the education and the psychological well-being of these children through the stress of dealing with the cancer. To this end



approximately 60 school visits were made to all parts of Manitoba to address a variety of issues including school re-entry after diagnosis or relapse, death education for classmates, or a discussion of physical and learning disabilities as a result of the treatment. These visits were supplemented by tours of the Hospital and the Cancer Foundation for the patients and classmates in twelve instances, and by the sixth annual inservice day for educators held in November 1989.

Increasingly and where possible children, including those terminally ill, are cared for at home. During 1989, through the home care program 64 patients received continued care and 23 new patients were co-ordinated for V.O.N. visits, R.N. follow-up in rural areas, nursing respite for palliative care, and the provision of supplies for infusing blood products, chelating agents (patients with severe hemolytic anemia) or enteral nutrition. There were included in the above numbers 4 children who required intensive symptom management who were cared for at home for six to twelve months. Rehabilitation of children is also a strong

part of the program, with an occupational therapist involved with approximately 25 children at any one time to assist with short and long-term development and intervention, and, where necessary, providing a liaison with the Department of Paediatric Rehabilitation Services.

To help patients and families learn about and cope with their illness, treatment, clinic visits, and hospitalization, the child life program has expanded into the area of preparation of children for radiotherapy treatment. Young children are prepared by reviewing-step-by-step photographs, a walk through the area with hands-on experience with the treatment machines, and an opportunity to take home a patient-puppet, complete with the treatment "shell". Similar "show and tell" photo albums were developed for CT scan and EEG procedures to lessen the children's anxiety. To wind up 1989, a successful Christmas holiday celebration was held in the chemotherapy treatment area with a 100 children, both patients and siblings.

PHARMACY

Organization

For the year 1989, the Pharmacy Department at the Manitoba Cancer Treatment and Research Foundation (MCTRF) was in a state of transition. The Outreach Pharmacist, Diana Dickof, employed by the Foundation since 1986, resigned. The pharmacist position, which remained vacant for six months, was redefined. Effective July 3rd, 1990, Venetia Bourrier assumed the position of Director of Pharmacy. In this new role, the Director will provide direction for the overall management of pharmacy services at MCTRF and the Outreach centres.

Activities and Developments

Intravenous (IV) Admixture Service:

At the present time the Department of Pharmaceutical Services at the Health Sciences Centre (HSC) is providing 50% of the antineoplastic admixture service to MCTRF. The service provided includes all orders from Drs. Brandes and Levitt, the Brain Tumor and Pediatric clinics. The remaining 50% of the antineoplastic admixture service is provided on site in the chemotherapy area, with nursing staff performing the admixing of the drugs. The goal for the upcoming year is for the Health Sciences Centre's Department of Pharmaceutical Services to expand the admixture service, thereby providing 100% coverage to MCTRF.

Clinical Pharmacy Services:

A clinical pharmacy program is being established at MCTRF, through provision

of drug information, and patient and staff education. A Pharmacy Newsletter is being developed. Participation in the Brain Tumor Clinic multi-disciplinary team meeting is being continued.

Research:

Participation in clinical investigation has been in the form of a resource person, and a liaison with the clinical investigations pharmacist at the Health Sciences Centre.

The Outreach Program:

To date, the Outreach Pharmacy program has shown progress in that the Pharmacy Reference Manuals, completed in 1988, have been updated. Oncology Pharmacy Standards have been developed and distributed to all centres. The goal for the upcoming year is to continue to make site visits to the Outreach Centres to monitor the existing standards. More training for pharmacists in handling of antineoplastics is being planned. A Quality Assurance (QA) Program draft has been circulated to Outreach Centres for field testing. Audits based on the QA Program criteria will be done in conjunction with site visits. To improve the acquisition of antineoplastic drugs by Outreach Centres, a drug inventory list of all the centres is being developed for circulation.

Future Planning:

Planning for the new cancer facility has begun, with development of a role statement and a functional plan for the Pharmacy Department.

PSYCHIATRIC ONCOLOGY SERVICE

The Psychiatric Oncology Service, designed specifically to meet the needs of the Manitoba Cancer Treatment and Research Foundation, began in September, 1987. Up until then, patients requiring psychiatric consultation were referred to the Department of Psychiatry's general Consultation Liaison (C/L) Service if in hospital, while no formal readily available channel existed for outpatient psychiatric consultation. While psychiatric oncology falls within the discipline of the C/L Psychiatry, it does require specific skills. These include psychiatric aspects of symptom control, familiarity with emotional issues related to life-threatening and terminal illness, and bereavement, and ability to diagnose and manage a variety of psychiatric syndromes in the context of malignant disease.

Inpatient and outpatient psychiatric consultation (along with follow-up when necessary) is available to any Cancer Foundation affiliated physician. While consultations are often initiated by other Foundation professional staff, all referrals must be made with the explicit approval of the attending physician. Supervision is available to all Foundation clinical staff with respect to emotional aspects of patient management. Since August, 1989,

psychiatric residents doing their C/L rotation have had the opportunity to participate in this service; this has consisted of clinical exposure, evaluation and management of psychiatric problems in patients with malignant diseases.

Staff support services include informal as well as formal psychiatric consultation for any Cancer Foundation employee. Weekly psychosocial rounds are held on D6; these provide a forum open to the multidisciplinary ward staff, facilitating discussion and interchange on emotional aspects of patient management.

We are delighted that 1990 will see the service expand into the research arena. A project studying emotional aspects of terminal illness has received funding from the Manitoba Cancer Treatment and Research Foundation and is now underway at the Princess Elizabeth Hospital.

1989 Statistics:

Outpatient Consultations	45
Inpatient Consultations	80
Outpatient Follow-Up Visits	198
Inpatient Follow-Up Visits	115

RADIATION ONCOLOGY

The Department of Radiation Oncology is a fully integrated program of the Manitoba Cancer Treatment and Research Foundation. The consultative and therapeutic services are provided at the M.R. MacCharles Unit, at which major equipment facilities are located, and also at the St. Boniface Hospital Oncology Unit where an isocentric telecobalt unit and simulator facility are available.

As a consequence of the establishment and eventual expansion of the coordinated multispecialty oncology program, including integrated radiotherapy and chemotherapy clinics at the St. Boniface Hospital Oncology Unit, the need for complete state-of-the-art radiotherapy equipment is obvious. Accordingly, this unit will be expanded by the addition of a dual energy linear accelerator and the establishment of an adequate infrastructure including Medical Physics, Treatment Planning and Mould Room.

As a result of the demand for increasingly sophisticated planning of radiotherapy and the increasing number of different kinds of radiotherapeutic treatments, the waiting times for treatment may, at times, become longer than what would be desirable. In order to keep the waiting times for treatment within reasonable limits, the working hours for the high energy linear accelerator remain extended between 7:00 a.m. and 10:15 p.m. It is expected that the need for extended working hours will probably remain necessary throughout the major part of the year 1990. Radiation therapy technologists, physicists, and the radiation oncology consultants have all generously given their time and support to maintain our clinical services at as opti-

mal a level as possible considering the availability of limited resources.

Following the installation of the second high energy linear accelerator at the M.R. MacCharles Unit, we expect the old 4 MeV low energy linear accelerator to be replaced by a new 6 MeV apparatus, which hopefully should be functional by August 1990.

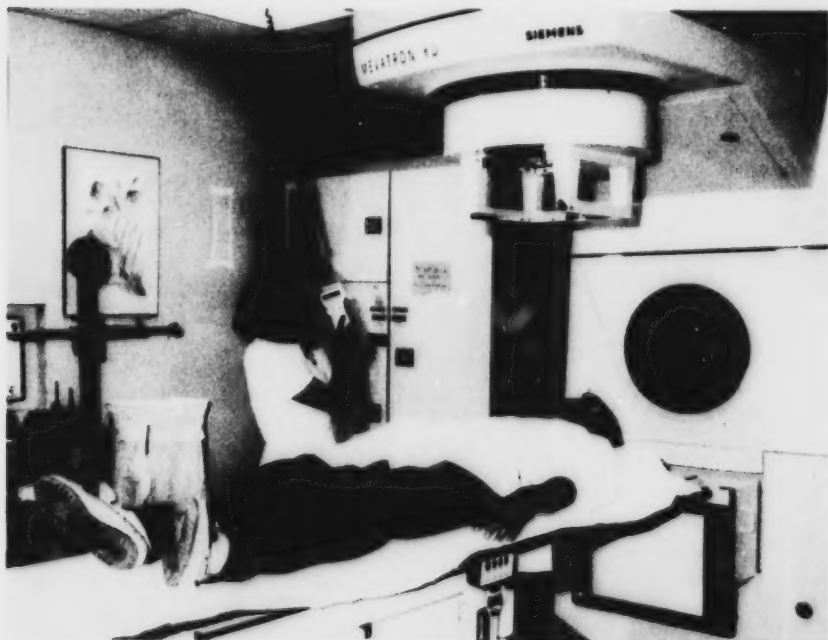
The integrated multi-disciplinary and site-oriented clinics have continued to expand during the year 1989 to include treatment of breast cancer, tumors of the central nervous system, gynecological oncology and lung cancer. Also, a multidisciplinary soft-tissue and bone sarcoma conference has been established with the attendance of orthopedic surgeons, general surgeons, medical and radiation oncologists, pathologists and diagnostic radiologists. Our ultimate goal is that most of the out-patient clinics will be conjointly staffed according to the overall integration plan. Also, the weekly head and neck multidisciplinary clinic is functioning very well with the attendance of clinicians from both Health Sciences Centre and St. Boniface Hospital.

The liaison between the Departments of Surgery, Internal Medicine and Diagnostic Radiology remains close. The in-patient Radiation Oncology/Surgical Oncology ward continues to function well. The problems with the shortage of brachytherapy beds for the non-gynecology patients requiring interstitial radiotherapy remain unchanged. Likewise, the O.R. time for brachytherapy remains insufficient and it is hoped that this particular problem will be resolved during the early part of 1990.

RADIOTHERAPY TREATMENT FLOOR

The radiotherapy treatment floor located at the M.R. MacCharles Unit has a staff of fourteen registered technologists with the support of two unit assistants and a receptionist. During the fiscal year of 1989/90, a total of 1,861 patients received radiation therapy, of whom 1,303 were new patients and 558 were re-treated patients. A total of 26,231 treatments were given. This figure is virtually unchanged from recent years, likely as a function of the fact that neither the number of staff, the hours of work, nor the number of treatment machines has been altered. In an attempt to ensure that the waiting time for patients requiring treatment was kept within acceptable limits, the hours of operation for the high energy accelerator remained at 0700 hours to 2215 hours.

Of major significance during the past fiscal year was the long - awaited installation of our new dual energy linear accelerator. The first patient was treated using this state-of-the-art accelerator in November. Extensive training was required for all treatment staff because of the introduction of the system Record and Verify - a technique new to our department. This system allows major treatment parameters to be recorded on a computer disc for each patient, and the accelerator and control console settings must correspond with the stored treatment parameters before a treatment can be initiated. The installation of this accelerator required many renovations in the department, and further renovations were undertaken to provide an even more hospitable environment for our patients



and their families. The informal consensus of patients and staff reveal that this goal has indeed been accomplished.

Clinical training of the radiotherapy students remained a significant part of our department's activities. In addition, some of our departmental staff participated in the classroom instruction of the training program. In the realm of staff education, our department continued its policy of requiring yearly C.P.R. recertification for all technologists, and a weekly inservice program was continued throughout much of the year. A commitment to ongoing staff education remained a goal of our department.

The renovations required for the anticipated installation of our 6 MV linear accelerator (to replace the 4 MV accelerator) commenced this year. It is also anticipated that on-line imaging will improve our treatment capability in the coming fiscal year, and the embarking upon the Bone Marrow Transplant Program will add significantly to our department's treatment activities.

The professional competence and caring of our department's technologists has been consistently demonstrated throughout the year, and a commitment to regarding patients needs as the foremost priority has been maintained.

SURGICAL ONCOLOGY

With the evolution of multi-modality treatment, the preeminence of the surgeon yielded to the authority of the expert team for optimal care of the patient with cancer. Today, surgical oncologists are presented with a wide array of presenting situations from hoarseness to a newly discovered lump. These conditions are evaluated for evidence of an underlying tumour. The final determination of the condition rests with a pathologist. It is thus the responsibility of the surgeon to undertake a prompt performance of a biopsy and appropriate handling of the tissue sample as

prerequisites for accurate and expeditious diagnosis.

There is currently one procedure room available for surgical procedures. During 1989, a total of 460 biopsies, minor operations and endoscopies were carried out. All procedures were done under local anaesthesia and on an out-patient basis. Although these procedures are done safely on an out-patient basis, the total surgical service available to cancer patients is limited based on the inability to perform procedures under general anaesthetic.

VOLUNTEER SERVICES

The 183 volunteers of the Manitoba Cancer Treatment and Research Foundation have responded to the needs of cancer patients and their families in a variety of ways throughout the past year. 15,943 hours of service were given from April 1, 1989 to March 31, 1990. More than 60,000 patients and family members were served refreshments which were provided by the Canadian Cancer Society. Work assignments were developed for new positions in Fundraising, Medical Physics, Hematology, the Coagulation Lab and Medical Records. Additional volunteers were placed in both Chemotherapy and Radiotherapy Clinic areas to help alleviate the heavy workloads of staff. These additions brought the possible placement areas for volunteers to 30. The assignments demonstrate the three-fold purpose of the department:

- 1) to provide additional services and comforts for patients and family members,
- 2) to supplement the work of staff by performing non-professional tasks,
- 3) to enhance public relations within the facility and throughout the city through the utilization of community volunteers.

Our volunteer program was featured in the June 1989 issue of the Manitoba Association of Directors of Volunteers in the Health Care Newsletter - MADVSH.

Requests for volunteers for the fundraising program, challenged us to expand the service. Special events for fundraising provided an opportunity for evening and weekend work.

The work experience program was expanded. Additional students from Daniel McIntyre Collegiate and Herzing Institute were placed. We were also able to place a student from the Manitoba Learning Centre.

Orientation and training were provided for 49 new volunteers. Fourteen new summer volunteers are included in this number.

The Canadian Cancer Society, Manitoba Division, sponsored a weekend workshop for emotional support volunteers, "Celebrating the Joys of Life," in May, 1989. Refreshment volunteers and volunteer drivers were invited for the Friday evening session. Marcia Lattanzi, a nurse educator from Boulder Colorado, was the theme speaker.

Six volunteers and the co-ordinator attended sessions of the Manitoba Health Organization Conference. Two informal gatherings of volunteers were held during the year. A demonstration of hand massage as a relaxation technique was given at one of these events.

The annual volunteer recognition tea was held in May as part of the capital funds campaign kick-off week. Lorrie Klassen, Director of the campaign, joined Dennis McMullen, Chairman of the Manitoba Cancer Treatment and Research Foundation Board and Merle Wilson of the Canadian Cancer Society, Manitoba Division, in saluting the volunteers.

A new volunteer co-editor for the newsletter was recruited for the spring edition. Using her page maker program, Frieda Klippenstein has been able to make several improvements. Four editions were published in the past year.

Six volunteers, Tony Gregorash, Bonny Kahanovitch, Rose Marier, Lorna Marshall, Shirley Poole and Dorothy Rankin, joined Ella Adams, Rosella Genik and Kay LeFevre in the 1,000 Hours Service Group.

In December, twenty four hampers and four gift packages were prepared for 23 women, 10 men, 6 teens and 47 children under twelve. This assistance



for our patients was made possible through the generosity of the Manitoba Association of Health Care Professionals, Canadian Union of Public Employees, Local 1550 and individual donors. Total income - \$1055.78, total expense - \$1035.71.

The Co-ordinators Resource Committee - Bev Glenday, Director of Nursing; Nancy Johnson, Senior Chemotherapy Nurse; Betty Wong, Oncology Social Work representing the Cancer Foundation; and Merle Wilson, Patient Services Administra-

tor; Elaine Enns, Chairman of Patient Services Committee; and Hazel Quinton, representing the Canadian Cancer Society, Manitoba Division, provided invaluable assistance in formulating the role statement for Volunteer Services.

Preliminary reports from the Patient Needs Study conducted by the Manitoba Division of the Canadian Cancer Society during the fall of 1989, indicate several areas of need. There will be new roles for volunteers as programs develop.



ST. BONIFACE GENERAL HOSPITAL



ONCOLOGY UNIT

In 1989, the focus of the St. Boniface Hospital Unit of the Manitoba Cancer Foundation was that of long term program development, in the context of a clinical load which reached the capacity of medical and nursing staff, and physical plant resources. Our patient numbers continued to grow, until we reached an effective capping due to manpower and space limitations. In particular, accrual to investigational studies in colon cancer was limited, and our ability to collaborate in a number of early stage investigational drug studies was likewise somewhat limited.

Nonetheless, significant progress was made in planning and program development to overcome these deficiencies in the long term. Approval was received from the Manitoba Health Services Commission for the installation of Linear Accelerator facilities which with their attached treatment planning, mold room, and physics structures will allow the full range of radiation treatment services to be provided at St. Boniface Hospital. In addition plans were developed for redeveloping the outpatient clinic space to accommodate the anticipated increased patient load which follows upon the installation of the Linear Accelerator, and the institution of a multidisciplinary clinic program for the management of most patients. It is anticipated that this capital redevelopment will be completed by late 1991.

The St. Boniface Hospital and Cancer Foundation Boards have established a bi-institutional working group to smooth

and accelerate program development at St. Boniface Hospital. In parallel with the installation of the Linear Accelerator facility, the Hospital has committed to the establishment of a dedicated, multi-disciplinary Oncology inpatient ward. The focus will be on the comprehensive management of solid tumours with a research emphasis on clinical trials, and outcome evaluation.

The research and development focus at the St. Boniface Unit made a substantial advance in 1989. It was designated by the World Health Organization as a Collaborating Centre for Quality of Life Research in Cancer. As such, it is currently the only cancer collaborating centre established by the World Health Organization in Canada. The mandate of the Centre is the development, and promulgation of quality of life outcome analysis techniques for application here and abroad. A formal announcement of the initiation of the Centre took place in November 1989. The first of three senior staff positions will be filled by January 1990; the second by the summer of 1990. The Centre will be located in the St. Boniface Hospital Research Building and is scheduled to open in the late summer or early fall.

Throughout this rather challenging time, the entire staff have worked closely to ensure that those patients who need to be seen have been seen. This has necessitated overtime hours, job sharing, and a pace of work that is the reflection of a truly dedicated staff.



PROGRAMMES

CANCER OUTREACH PROGRAMME

A provincial program is not possible without team effort. The Outreach team consists of the health professionals involved at the Outreach Centers, the administrative staff at the Outreach hospitals; oncology, radiotherapy, health records, social work, pharmacy, administrative, computer and clinical investigations office staff at the McCharles and St. Boniface Units of the Manitoba Cancer Treatment and Research Center (MCTRF). All these, and many others participate in implementation of the program today and its development for the future.

Ten years have passed since the initial steps were taken by a small team—Drs. Harvey Schipper and Martin Levitt and Mrs. Margaret Hurl, R.N. to set-up a community-based cancer program in Manitoba. At that time, the idea of sending cancer patients back to their own communities for chemotherapy was viewed with some skepticism. Many of the health professional staff at the MCTRF felt that, even though the community nurses and physicians would receive training in the management of cancer patients on chemotherapy, patient care would be compromised.

In 1989, we now administer over 2000 chemotherapy treatments yearly in our seven centers. The illness severity of the patients being treated within the Outreach system has increased considerably over the past ten years; and we find that three-quarters of the treatments now require admixing for more than two drugs per treatment. Many other services are now being provided in the centers, e.g., transfusions, bladder instillations, follow-up visits, patient teaching, etc.

1989

Total # of chemotherapy treatments	1569
Total # of follow-up visits	576

New Patient Accrual in 1989

# of patients entered for chemotherapy	90
# of patients entered on clinical trials	15
# of patients entered for follow up	35
# of patients referred from outside of MCTRF	11
TOTAL # OF NEW PATIENTS	151

Outreach Undertakes Research

In order to evaluate the safety of the Outreach Program for Manitoba's rural cancer patients, the coordinator and data manager conducted a research study with the assistance of the Manitoba Nursing Research Institute. The research was a repeat of an earlier study done in the initial phases of the Outreach project. The 1985-87 retrospective study showed that the subset of patients who had received chemotherapy in the rural Outreach Centers had survival and disease-free survival rates similar to those patients treated at MCTRF. A presentation based on this research was made at the Canadian Psychosocial Oncology Conference in Vancouver in April 1989. In November 1989, Anne Nemecek, and Cheryl Karaz received an award from the Manitoba Nursing Research Institute, University of Manitoba, for the best 1989 study done by researchers outside the University. Future goals of the Outreach Program include other areas of research—quality of life studies comparing the quality for rural patients who must come to MCTRF for treatment with those who have their treatment closer to home, accrual studies, quality care studies.

Program Development

Gimli Outreach Center was officially opened in December 1989. Gimli Outreach was able to use The New Center Manual, developed earlier in 1989, to

assist them to get underway. The opening of this center was an important step for the program, as it was the first center to be opened since 1986. Negotiations have begun with two other centers, which will open in late 1990 or early 1991.

There are no standard space guidelines for chemotherapy programs in Canada. With the expansion of the program in new and existing centers, government approached the Outreach Program to develop guidelines for future centers. The Planning Office at St. Boniface General Hospital, and the Outreach coordinator, along with assistance from the current Outreach Centers, will be publishing space guidelines for Outreach in 1990.

Quality assurance was the program emphasis for 1989. The data manager developed audits to monitor the quality of the documentation being received from the centers. A new mechanism, using Fax technology, was implemented to speed up the process for interchange of information between MCTRF and the Outreach Centers. The Canadian Oncology Nurses Association put the final touches on oncology nursing standards which are being used as the basis for chemotherapy nursing audits at the centers. The Outreach pharmacist made several visits to Outreach Centers to discuss the new pharmacy oncology standards. The program coordinator began work with the oncologists to develop medical oncology standards for the program. A patient satisfaction questionnaire was piloted in three centers before going into print for wide distribution to all centers.

A major step for the program was the creation of an Outreach Advisory Committee. This committee, made up of representatives from professional organizations/institutions who are impacted by the operation or ongoing development of Outreach, has assumed the role of

advising the program administration regarding the direction of ongoing and future program developments.

Training and continuing education continued to be an ongoing activity for Outreach. Another very successful symposium was held at the Viscount Gort, April 13-14, 1989. Dr. Jack Laidlaw from the Canadian Cancer Society-National Division spoke about recommended breast screening guidelines. Four Outreach physicians and four Outreach nurses received orientation to Outreach during the year.

Computer Advisory Committee

In the late Fall of 1989 a consortium of MCTRF, University of Manitoba, Price-Waterhouse, National Research Council, and Communications Canada began to work together to develop a chemotherapy advisor system which would operate to improve communications in the Outreach Program. Work will continue in 1990 on the development of a pilot project to test this system in Outreach. This work is the beginning of the realization of the dream to computerize the link between the Outreach Centers and MCTRF. However, the development of this system on an artificial intelligence level is making it possible to go far beyond the kind of communications system first imagined.

National Outreach Conference

The Outreach Program, representing the community-based oncology program at MCTRF, is involved with other provincial Outreach programs in planning the first National conference on Community-Based Cancer Programs to be held in Winnipeg October 12-14, 1990. It is hoped that the result of this conference will be recommendations which may be used to develop new provincial Outreach programs, or enhance existing programs.

Future Plans

The focus for Outreach in the 1990's will be on the quality of care in the Outreach Centers. Other quality assurance tools will be developed, quality of life studies will be implemented, enhanced means of providing continuing

education will be reviewed, and better links with psychosocial supports will be formed. Hopefully, these programs will assist the Outreach Centers to provide the best possible cancer care to Manitoba's rural cancer patients.

CANADIAN CANCER SOCIETY VOLUNTEER SERVICES

The Patient Services programs of the Canadian Cancer Society offer assistance to Manitobans living with cancer, giving hope and support to both patients and their families.

In 1989, 'Kids Can Cope' became an ongoing joint program of the Society, the Manitoba Cancer Treatment and Research Foundation and the St. Boniface General Hospital. This program offers support to children who have a parent, grandparent, sibling, relative or friend who has cancer. It helps children and teenagers to learn about cancer and its treatment and to share their feelings and concerns in a supportive environment.

Two programs were conducted (spring and fall) with 45 children from 26 families participating.

The Society continued its involvement in summer camps for children and young adults touched by cancer. Four camps were held in 1989, including a children's camp, two teen and young adult camps and a family camp. The camps provide a relaxed setting for children and their families to spend time together outside of a hospital setting.

All funding for the camps is provided by the Society. The children's camp is organized by the Children's Pediatric Oncology Clinic, the teen and young adult camps by the Children's Hospital oncology social worker and the family camp by Jeffrey's Folks, a Canadian Cancer Society emotional support group. Camp registration totalled 275 in 1989.

Other services of the Society continued to serve a wide range of needs for Manitobans of all ages:

- For rural Manitobans travelling to Winnipeg for treatment, convenient economical accommodation was available at the **Lennox Bell Lodge** adjoining the Manitoba Cancer Treatment and Research Foundation. The Society provides a 50 per cent subsidization on room rates for a cancer-related stay. Advance bookings are recommended.
- Cancer patients increasingly used the **Volunteer Driver Program** to get to and from treatment, with over 60 rides per day being provided in 1989. Also in 1989, the Masons in rural



Manitoba mobilized effectively to bring patients into Winnipeg and to other, rural, treatment centres. The Society subsidizes this program, keeping patient's costs to a minimum.

- Trained **CanSurmount** visitors provided emotional support to many newly-diagnosed cancer patients. Having experienced cancer themselves, these visitors are in a unique position to offer emotional support. CanSurmount Volunteers are available to visit either in the home or in the hospital and also visit informally in three treatment areas of the clinic: chemotherapy, radiotherapy and the head and neck clinic.
- Volunteers with the Society's **Reach to Recovery** program helped mastectomy patients come to terms with their surgery. Having experienced breast cancer personally, these visitors are sensitive to the necessary adjustments in body, mind and spirit, giving emotional support and practical advice.
- Time spent in the treatment clinic waiting room was made easier for many patients and family members by the efforts of the **Refreshment Service** Volunteers who provided hospitality and over 60,000 snacks to Manitobans in 1989.
- **The New Voice Club** continued to provide emotional support and practical advice to people needing a laryngectomy or having just undergone the surgical procedure.
- The new Voice Club also hosted a successful Western Canadian Laryngectomy Seminar in 1989, a precursor to the 1991 International Association of Laryngectomees' Conference which will be hosted by The New Voice Club, July 23-28, 1991. It marks the

first time in its 40 year history that this conference will be held outside the United States.

- Parents of children with cancer experience extreme stress. **Jeffrey's Folks** was there again in 1989 to provide emotional support, information and friendship to parents in need.
- Adults and children undergoing cancer treatment had ready access to over 1000 refurbished wigs, as well as turbans and scarves through the Society's **Wig Service**. All are available free of charge.
- The Society's **Financial Assistance Program**, established with the philosophy that no patient miss treatment because of financial hardship, continued to cover the cost of accommodation and transportation for needy rural patients.

These valuable services served Manitobans well in 1989, and the Canadian Cancer Society is committed to ensuring its programs and services continue to serve the changing needs of cancer patients and their families. To this end, a comprehensive study of 'The Needs of Cancer Patients in Manitoba' was under-taken this past year. Interviews with 564 people with cancer were conducted, and a final, detailed report is being prepared for the fall of 1990. Using the results of this report, the Manitoba Division will actively examine ways of improving existing services provided by the Society.

People living with cancer look for comfort, meaning, dignity and hope in their personal struggle with the disease. The Patient Services programs and dedicated Volunteers of the Canadian Cancer Society, Manitoba Division, are there to assist.

RADIATION THERAPY TECHNOLOGIST TRAINING PROGRAM

Although we have yet to have graduates of our revised program write national certification examinations, our in-house evaluation program indicates that the many changes we have instituted over the last few years have been favorably received by both the staff and the students involved. In December 1989 the Conjoint Committee on National Accreditation for Allied Health Professionals surveyed this program and we obtained full accreditation for a period of five years.

In 1989 we accepted 6 students into the 1st year of our program, five additional students sponsored by the Saskatchewan Cancer Foundation joined us for the academic block, and four students entered the predominately clinical 2nd year of the program. We continue to enjoy and benefit from the participation of students from Regina and Saskatoon.

In December 1989 Mrs. Kathy Suderman accepted the position of Deputy Program Coordinator. Her position is a 0.6 EFT and her responsibilities lie predominately with the first year students. We welcome her commitment to the students in this program, and are grateful to the Medical Physics Department for making it possible for her to retain some of her clinical responsibilities while working on a part-time basis for the training program.

It has been a busy year for us as we participated in formation of the Functional Program and the Cancer Foundation Role Statement and we look to the future with anticipation of an improved educational program as well as improved physical facilities as the new building becomes a reality.

**MANITOBA INSTITUTE OF
CELL BIOLOGY**



INTRODUCTION

The Manitoba Institute of Cell Biology was founded jointly by the University of Manitoba and the Manitoba Cancer Treatment and Research Foundation in 1969. The purpose of the Institute is to carry out research and training in cancer and other diseases by studying disease mechanisms at a cellular and molecular level. The Institute of Cell Biology is governed by an independent Board of Management consisting of eleven members, three appointed by the University of Manitoba, three appointed by the Manitoba Cancer Treatment and Research Foundation and five jointly appointed by both sponsoring Institutions. The Manitoba Institute of Cell Biology is housed in the Manitoba Cancer Treatment and Research Foundation adjacent to the Faculty of Medicine, University of Manitoba and the Health Sciences Centre.

The Institute of Cell Biology consists of a Director, twelve senior investigators, and ninety-five staff including research associates, postdoctoral fellows, graduate students, technicians, laboratory assistants and secretaries. Although the Institute of Cell Biology is not a degree-granting body, advanced degrees at the Masters or Ph.D. level may be obtained with any of the departments in the Faculty of Medicine, University of Manitoba. The major emphasis of the research program of the Institute of Cell Biology has centered on the fields of Molecular Biology of Tumor Progression, Biochemical Pharmacology of Drug Resistance, Immunology and Hematology. Senior investigators hold cross-appointments

in many University departments including the Departments of Immunology, Genetics, Biochemistry, Physiology, Microbiology, Medicine and Pediatrics.

The location of the Manitoba Institute of Cell Biology in the Manitoba Cancer Treatment and Research Foundation building has enabled the development of parallel programs of basic and clinical investigation of patients with neoplastic disease. Patients with a wide range of neoplastic disorders are available for investigation conducted by senior investigators in the Institute. Not only is this interaction facilitated by a geographical juxtaposition of the two Institutions, but also by the fact that many senior investigators hold cross-appointments in the Manitoba Institute of Cell Biology and Manitoba Cancer Treatment and Research Foundation.

The Manitoba Institute of Cell Biology is only one of two institutes in Canada funded by the National Cancer Institute, and has been continually supported by the NCI since the inception of the Institute group in 1969. During the 1988-89 academic year, members of the Institute raised \$3.02 million dollars in research funds, of which \$0.7 million was for career awards, postdoctoral fellowships and studentships. Funding sources include the NCIC, MRC, NSERC, NIH, many smaller foundations, as well as private industry (Bristol-Myers, Park Davis, RJ Reynolds). This represents one of the highest per capita funding rates of all the University Departments or Institutes.

ADMINISTRATION

Arnold H. Greenberg, M.D., Ph.D., *Director*

Jim A. Wright, Ph.D., *Associate Director*

Nikki Ryan, *Administrative Assistant*

BOARD OF MANAGEMENT

Dennis J. McMullin, *Chairman*

Richard Andison, *Member-at-Large*

Nick Anthonisen, *Dean, Faculty of Medicine*

Sheldon Berney, *Member-at-Large*

Bob Best, *Canadian Cancer Society*

Agnes Bishop, *Head, Department of Pediatrics, University of Manitoba*

Justice Gordon Hall, *Member-at-Large*

Lyonel Israels, *Executive Director, Manitoba Cancer Foundation*

James Jamieson, *Head, Department of Chemistry, University of Manitoba*

Marion Vaisey-Genser, *Vice-President (Research), University of Manitoba*

SCIENTIFIC STAFF:

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Sara J. Israels, M.D.

H.Y. Peter Lam, Ph.D.

Frixos Paraskevas, M.D.

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Mohammed Deffie, Ph.D.

Robert Hurta, Ph.D.

Archie McNicol, Ph.D.

Satya Saxena, Ph.D.

Lianfa Shi, Ph.D.

Richard Brown, Ph.D.

Lori Ebbeling, M.D.

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Geoffrey Hicks, B.Sc.

Ricky Kraut, B.Sc.

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Catherine Vriend, B.Sc.
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Li Zuo, M.D.

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Lorne Janz
Raminder Nirula
Anne Robbins

Bruce Ballon
Gerald Eschun
Joanna Lynch
Martin Reese
Paul Syslak

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Catherine Robertson
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Dr. Lev Hatzkellson, *Ben Gurion University, Israel*
Dr. Hans Lutz, *Swiss Federal Institute of Technology, Zurich*

ANNUAL REPORT

The purpose of the Institute of Cell Biology is to carry out research in cancer and to train young researchers for a career in cancer research. The Institute is currently housed in the second floor of the Manitoba Cancer Treatment and Research Foundation and is part of the Health Sciences Centre and The University of Manitoba. The Institute consists of thirteen senior investigators and one hundred research staff, including M.D. and Ph.D. trainees, students, technicians and laboratory assistants. In the last few years, the Institute of Cell Biology has focussed its research in three main areas: (1) the genes which control tumor growth and spread, (2) the development of drug resistance, and (3) the immunological mechanisms for control of cancer growth.

The rapid growth of biotechnology in the 1980's has allowed remarkable new approaches to the study of cancer. Most significant advances have been in the development of new methods to study the structure of genes, the master regulators of all life. Certain types of genes have been shown to be modified or mutated in cancer and appear to play a very important role in the development of such diseases as lung, colon and breast cancers. These genes can be mutated by carcinogens such as cigarette smoke, radiation; in some circumstances, they are inherited. The goal of our research programs is to identify the mutated genes which are important for producing highly malignant tumors that can spread or metastasize to different organs in the body. In the last few years our researchers have led the way in identifying the types of genes which can produce the metastatic disease that is so devastating in patients with cancer.

The biotechnology revolution has also allowed is to study the ways in which cancer cells become resistant to chemotherapy. Patients with advancing cancer is thought to be, in part, due to changes that occur in the cancer cells themselves. From the analysis of genes in these cancer cells our investigators and others in many universities have identified the genetic changes that occur in cancer cells that make them resistant to chemotherapeutic drugs. Our scientists are attempting to design new drugs to overcome the resistance and to make chemotherapy more tolerable.

Finally, our researchers have been studying cells of the immune system that can kill cancer. Recently, doctors in Washington, D.C. have discovered that one of these cells, called a LAK cell, can be used for treating cancer. Our scientists who have been involved in the study of the LAK cell for many years are now attempting to find out how the LAK cell can kill tumor cells in an effort to further improve their use for treatment.

The scientific effort by researchers in the Institute of Cell Biology provides not only a research centre that is at the forefront of cancer research in Canada and the world, but an excellent training ground for new young researchers. Our Institute trains medical doctors, as well as Ph.D. scientists to continue to develop new forms of treatment and diagnosis, as well as to introduce these treatments into the Clinic. Research is vital to a cancer treatment facility such as ours, as it brings new knowledge to our medical community. Doctors who deliver care to the patients benefit from the expertise of our cancer researchers, as do all Manitobans who suffer from cancer.

AUDITOR'S REPORT

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Coopers & Lybrand (international)

June 8, 1990

AUDITORS' REPORT TO THE MEMBERS

We have examined the balance sheet of The Manitoba Cancer Treatment and Research Foundation as at March 31, 1990 and the statements of revenue and expenses and surplus of the General Account, the Trust and Research Account and the Building Account, and the statement of Clinical Investigation Account transactions for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these financial statements present fairly the financial position of the Foundation as at March 31, 1990 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied, after giving retroactive effect to the change in the method of recording employee benefit costs as explained in note 6 to the financial statements, on a basis consistent with that of the preceding year.

Coopers & Lybrand

CHARTERED ACCOUNTANTS

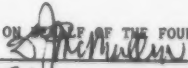
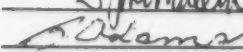
THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

BALANCE SHEET AS AT MARCH 31, 1990

A S S E T S

	1990 \$	1989 \$
GENERAL ACCOUNT		
Cash and term deposits	1,314,441	936,239
Amounts owing by the Manitoba Health Services Commission (note 2)	70,182	178,530
Accounts receivable	18,068	4,725
Amounts receivable from Clinical Investigation Account	1,648	19,700
Amounts receivable from Trust and Research Account	-	1,190
Inventory of supplies - at cost	51,563	41,549
Prepaid expenses	34,384	32,551
Deferred employee benefits (note 6)	335,000	309,000
Equipment - at nominal value	<u>1</u>	<u>1</u>
	<u>1,825,287</u>	<u>1,523,485</u>
TRUST AND RESEARCH ACCOUNT		
Cash	58,679	38,155
Accounts receivable and accrued interest	167,929	194,073
Amounts receivable from General Account	16,690	-
Investments - at cost	7,355,520	7,634,133
Deferred fundraising expense	<u>-</u>	<u>38,639</u>
	<u>7,598,818</u>	<u>7,905,000</u>
BUILDING ACCOUNT		
Cash	1,084,274	-
Accounts receivable	4,093	-
Amounts receivable from General Account	18,919	-
Amounts receivable from Trust and Research Account	565	-
Investments - at cost	<u>1,786,416</u>	<u>-</u>
	<u>2,894,267</u>	<u>-</u>
CLINICAL INVESTIGATION ACCOUNT		
Cash	293,726	277,408
Accounts receivable	64,514	550
Amounts receivable from Trust and Research Account	<u>2,155</u>	<u>-</u>
	<u>360,395</u>	<u>277,958</u>

SIGNED ON BEHALF OF THE FOUNDATION


Member

Member

LIABILITIES

	1990 \$	1989 \$
Accounts payable and accrued liabilities	957,152	822,649
Amounts payable to Trust and Research Account	16,690	-
Amounts payable to Building Account	<u>18,919</u>	<u>-</u>
	992,761	822,649
Surplus	832,526	700,836

<u>1,825,287</u>	<u>1,523,485</u>
------------------	------------------

Accounts and grants payable	639,007	189,596
Amounts payable to General Account	-	1,190
Amounts payable to Building Account	565	-
Amounts payable to Clinical Investigation Account	2,155	-
Research fund	<u>6,957,091</u>	<u>7,714,214</u>
	7,598,818	7,905,000

Accounts payable and accrued liabilities	11,174	-
Building fund	2,883,093	-
	<u>2,894,267</u>	<u>-</u>

Accounts payable and accrued liabilities	182,403	56,991
Amounts payable to General Account	1,648	19,700
Commitments payable	<u>176,344</u>	<u>201,267</u>
	360,395	277,958

Coopers
& Lybrand

THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

GENERAL ACCOUNT

STATEMENT OF REVENUE AND EXPENSES AND SURPLUS

FOR THE YEAR ENDED MARCH 31, 1990

	1990 \$	1989 \$
REVENUE		
Manitoba Health Services Commission	9,347,095	8,411,426
Recoveries from other institutions	<u>46,602</u>	<u>68,024</u>
	<u>9,393,697</u>	<u>8,479,450</u>
EXPENSES		
Operating expenses -		
Salaries and benefits	7,428,951	6,730,376
Building occupancy	734,742	882,808
General expenses	508,342	440,553
Supplies and other departmental expenses	344,089	224,526
Diagnostic services	<u>204,781</u>	<u>217,429</u>
	9,110,905	8,295,792
Equipment purchases	<u>283,700</u>	<u>159,626</u>
	<u>9,394,604</u>	<u>8,455,418</u>
EXCESS OF REVENUE OVER EXPENSES (EXPENSES OVER REVENUE)	(917)	24,062
OTHER INCOME - net of unfunded costs (note 3)	<u>132,607</u>	<u>33,461</u>
SURPLUS FOR THE YEAR	131,690	57,523
SURPLUS - BEGINNING OF YEAR	<u>700,836</u>	<u>643,313</u>
SURPLUS - END OF YEAR	<u>832,526</u>	<u>700,836</u>

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THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

TRUST AND RESEARCH ACCOUNT

STATEMENT OF REVENUE AND EXPENSES AND SURPLUS

FOR THE YEAR ENDED MARCH 31, 1960

	1960 \$	1959 \$
REVENUE		
Donations	181,001	444,209
Investment income	794,243	712,996
Transfer from General Account	<u>13,500</u>	<u>13,230</u>
	<u>988,744</u>	<u>1,170,435</u>
EXPENSES		
Chemotherapy advisory system (note 4)	478,650	-
Cell Biology	300,000	92,644
Research grants and personal awards	117,392	230,878
Equipment	45,734	15,029
Staff co-ordinator	28,800	25,750
Miscellaneous	<u>8,312</u>	<u>17,292</u>
	<u>978,881</u>	<u>481,593</u>
EXCESS OF REVENUE OVER EXPENSES (EXPENSES OVER REVENUE)	(16,137)	768,939
FUND BALANCE - BEGINNING OF YEAR	<u>7,714,214</u>	<u>6,945,275</u>
	7,698,091	7,714,214
TRANSFER TO BUILDING ACCOUNT (note 5)	<u>(761,000)</u>	<u>-</u>
FUND BALANCE - END OF YEAR	<u>6,937,091</u>	<u>7,714,214</u>

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THE MARITIME CANCER TREATMENT AND RESEARCH FOUNDATION

BUILDING ACCOUNT

STATEMENT OF REVENUE AND EXPENSES AND SURPLUS

FOR THE YEAR ENDED MARCH 31, 1990

	1990 \$	1989 \$
REVENUE		
Donations	1,927,378	-
Lottery - net of expenses of \$813,726	686,274	-
Interest	<u>189,187</u>	<u>-</u>
	<u>2,802,839</u>	<u>-</u>
EXPENSES		
Direct mail campaign	379,645	-
Fundraising consultant fees	94,500	-
Salaries and benefits	77,954	-
Printing, stationery and brochures	31,700	-
Computer services	34,193	-
Equipment	29,356	-
Miscellaneous	<u>29,124</u>	<u>-</u>
	<u>686,748</u>	<u>-</u>
EXCESS OF REVENUE OVER EXPENSES	2,116,091	-
TRANSFER FROM TRUST AND RESEARCH ACCOUNT (note 3)	<u>741,000</u>	<u>-</u>
FUND BALANCE - END OF YEAR	<u>2,857,091</u>	<u>-</u>

Comptroller
Alfred

THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

STATEMENT OF CLINICAL INVESTIGATION
ACCOUNT TRANSACTIONS

FOR THE YEAR ENDED MARCH 31, 1990

	1990 \$	1989 \$
RECEIPTS		
Grants received	960,996	1,115,707
Interest	30,710	22,477
Royalties	<u>69,022</u>	<u>-</u>
	<u>1,060,728</u>	<u>1,138,184</u>
DISBURSEMENTS		
Associated Institutions - salary support	189,419	277,132
Clinical Investigation Office	149,456	100,724
Lung cancer studies	120,832	82,872
Other studies of less than \$20,000	95,314	68,311
Outreach Network	75,342	-
Therapies modification	90,732	56,564
Royalties	50,322	-
On-line verification of radiation treatment	58,107	-
Administrative costs	50,898	20,902
Chemotherapy Advisory System (formerly Artificial Intelligence Project)	47,299	419,619
Electron Dosimetry	48,249	27,497
Moly Extraction System	45,431	-
On-line portal imaging	33,829	109,117
Effect of Estradiol and Tamoxifen on Lymphocytes	23,084	19,885
Radiotherapy portal verification and rectification	17,383	-
Experimental hyperthermia	10,751	23,836
Breast screening program	-	50,190
Terry Fox cancer awards	<u>-</u>	<u>23,234</u>
	<u>1,087,828</u>	<u>1,284,183</u>
EXCESS OF DISBURSEMENTS OVER RECEIPTS	24,923	145,979
COMMITMENTS PAYABLE - BEGINNING OF YEAR	<u>201,267</u>	<u>347,246</u>
COMMITMENTS PAYABLE - END OF YEAR	<u>176,344</u>	<u>201,267</u>

Chapman
& Partners

THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

NOTES TO FINANCIAL STATEMENTS

FOR THE YEAR ENDED MARCH 31, 1990

I. SIGNIFICANT ACCOUNTING POLICIES

The financial statements of the Foundation are prepared in accordance with generally accepted accounting principles for non-profit organizations and reflect the following policies:

(a) Equipment

Annual expenditures for equipment acquisitions are charged directly to operations.

(b) Investments

Investments are recorded at cost with any premium or discount being amortized over the term of the investment.

(c) Revenue

Revenue received from the Manitoba Health Services Commission for net insured patient costs is based on operating budget amounts approved annually and adjusted for amounts to be returned to or recovered from the commission in respect of surplus or deficit arising in the current fiscal year.

(d) Surplus

The Foundation is entitled to retain surpluses arising from excess of revenue over approved expenses for each fiscal year up to a maximum of 2% of the net insured patient costs. Any surplus amount in excess of the maximum is returned to the Manitoba Health Services Commission.

(e) Grants

Grants are included in the expenditures of the Trust and Research Fund in the year they are approved.

(f) Donations and pledges

Donation revenue is recorded in the year the donation is received and pledges are not recorded as revenue until the amount has been received.

(g) Clinical Investigation Account

The Clinical Investigation Account segregates grants received from external sources for specific clinical research projects undertaken by the Foundation. Grants received and disbursements made are recorded on a cash basis. The duration of these projects usually ranges from one to three years.

Charters
Allywood

THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION
NOTES TO FINANCIAL STATEMENTS
FOR THE YEAR ENDED MARCH 31, 1990

2. TRANSACTIONS WITH THE MANITOBA HEALTH SERVICES COMMISSION

In addition to the receipt of operating revenue, the Foundation had the following transactions with MHSC during the year:

	1990	1989
	\$	\$
AMOUNTS OWING BY MHSC - BEGINNING OF YEAR		
1988 deficit recoverable	153,731	
Equipment purchases recoverable	<u>24,799</u>	178,530
Current year equipment purchases recoverable		283,709
Equipment purchases recovered		(238,326)
1988 deficit recovered		<u>(153,731)</u>
AMOUNTS OWING BY MHSC - END OF YEAR		<u>70,182</u>

3. OTHER INCOME - net of unfunded costs

	1990	1989
	\$	\$
Interest	117,397	43,733
Overhead costs recovered from Clinical Investigation Account	30,710	22,477
Transfer to Trust and Research Account	(19,500)	(13,250)
Adjustments to amounts owing by MHSC	-	(18,981)
Other expenses	<u>-</u>	<u>(2,318)</u>
	<u>132,607</u>	<u>33,461</u>

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& Lybrand

THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

NOTES TO FINANCIAL STATEMENTS

FOR THE YEAR ENDED MARCH 31, 1990

4. OBLIGATION UNDER LEASE AGREEMENT

In December, 1987 the Foundation entered into a three year lease agreement with First City Capital Ltd. to finance the purchase of computer equipment and maintenance totalling \$759,452 for the chemotherapy advisory system in the Clinical Investigation Account. Certain leasing costs associated with the agreement were to be recovered from the International Artificial Intelligence group of Nexa Corporation who were also participating in the project. Regular lease payments were made by the Foundation until November, 1988 at which time the Foundation ceased making payments because Nexa Corporation had declared bankruptcy and was no longer contributing to the project. The balance of the lease obligation was \$621,840 at that time.

During the year, the Foundation was involved in discussions with First City Capital Ltd. in an attempt to reach a settlement on the lease. A settlement of \$475,000 was negotiated in June, 1990 and the amount has been recorded as an expense of the Trust and Research Account for the year ended March 31, 1990 along with legal and other settlement costs.

5. BUILDING ACCOUNT

On May 1, 1989, the Foundation initiated a fundraising campaign aimed at raising capital for the expansion of existing facilities. The preliminary costs of the expansion are estimated at \$15,000,000.

A separate fund has been created to record the transactions of this fundraising campaign and all unrestricted donations received in the period from May 1, 1989 to December 31, 1990 will be recorded in this account. In addition, a transfer of \$741,000 from the Trust and Research Account to the Building Account was approved by the Board during the year.

6. CHANGE IN ACCOUNTING POLICY

Effective April 1, 1989, the Foundation adopted retroactively the new recommendations issued by the Canadian Institute of Chartered Accountants requiring the accrual basis of accounting for non-profit organizations. The Foundation previously recorded vacation pay on a cash basis. This change in accounting method has been applied retroactively in the financial statements.

The effect of this change was to reflect deferred employee benefits of \$335,000 (1989 - \$309,000) with a corresponding increase in accrued liabilities. Vacation pay is recoverable from the Manitoba Health Services Commission as a component of the salary costs included in the Foundation's budget for the 1990 - 1991 fiscal year.

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SCHEDULE A

THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

TRUST AND RESEARCH ACCOUNT

SCHEDULE OF INVESTMENTS AS AT MARCH 31, 1990

	Book value \$	Market value \$
Bonds, debentures and guaranteed investment certificates -		
B.C. Telephone Company - 9.875%, November 1, 2003	50,000	42,675
Bell Canada Enterprises Inc. - 11.625%, May 2, 1990	249,216	249,625
City of Edmonton - 12.875%, June 13, 1992 12.875%, December 13, 1992	29,037 82,836	29,240 82,330
Ford Credit Canada Ltd. - 10.25%, March 4, 1991	99,991	96,850
Government of Canada - 9.75%, May 1, 1991 10.875%, November 1, 1991 9.25%, July 1, 1992 10.91%, November 1, 1992 10.75%, May 1, 1993 9.25%, May 15, 1997	199,672 32,881 198,818 93,782 453,192 200,000	193,100 32,060 187,400 90,710 444,490 179,000
Government of Canada Treasury Bills - 11.76%, April 6, 1990 12.00%, April 12, 1990 12.40%, May 4, 1990 11.40%, August 31, 1990 13.10%, September 28, 1990 12.00%, February 23, 1991 12.50%, March 1, 1991 10.25%, February 23, 1993	185,650 211,209 212,565 318,787 301,532 207,849 314,244 162,912	185,650 211,209 212,565 318,787 301,532 207,849 314,244 162,912
Investors Group Debentures - 9.875%, October 4, 1998	<u>50,000</u>	<u>42,725</u>
Carried forward	3,634,173	3,585,953

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& Lybrand

THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

TRUST AND RESEARCH ACCOUNT

INVESTMENTS AS AT MARCH 31, 1990

	Book value \$	Market value \$
Brought forward	3,654,173	3,585,953
Bonds, debentures and guaranteed investment certificates (cont'd) -		
Montreal Trust -		
12.03%, April 16, 1990	500,000	500,000
11.25%, October 2, 1990	20,000	20,000
Ontario Hydro Bonds -		
10.75%, December 15, 1992	199,626	192,600
9.75%, January 15, 1993	596,596	566,700
9.50%, February 10, 2000	400,000	349,200
Royal Bank of Canada -		
10%, December 1, 1994	160,000	144,640
Royal Trust -		
12.38%, April 30, 1990	529,273	529,273
10.25%, December 19, 1990	150,000	150,000
9.625%, May 1, 1991	10,000	10,000
11.25%, December 13, 1993	225,028	225,028
11.38%, December 19, 1993	500,000	500,000
11%, December 21, 1993	10,005	10,005
12.13%, March 30, 1994	200,000	200,000
10.9%, August 15, 1994	<u>200,812</u>	<u>200,000</u>
	<u>7,335,520</u>	<u>7,183,399</u>

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SCHEDULE B

THE MANITOBA CANCER TREATMENT AND RESEARCH FOUNDATION

BUILDING ACCOUNT

INVESTMENTS AS AT MARCH 31, 1990

	Book value \$	Market value \$
Bonds, debentures and guaranteed investment certificates -		
Government of Canada Treasury Bills -		
11.50%, August 24, 1990	214,120	214,120
11.30%, December 28, 1990	463,378	463,378
Province of Alberta -		
12.05%, May 7, 1990	203,657	203,657
Canadian Imperial Bank of Commerce -		
12.90%, June 21, 1990	205,091	205,091
Ford Motor Credit Corporation -		
12.80%, May 9, 1990	482,346	481,526
Manitoba Hydro Bonds -		
11.25%, June 15, 1992	<u>217,816</u>	<u>217,816</u>
	<u>1,786,416</u>	<u>1,785,596</u>

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1989/1990 ANNUAL REPORT



MANITOBA CANCER TREATMENT
AND RESEARCH FOUNDATION

1989 CANCER STATISTICS

CANCER

INCIDENCE and MORTALITY

**in the PROVINCE of
MANITOBA**

**DURING the CALENDAR
YEAR of 1989**

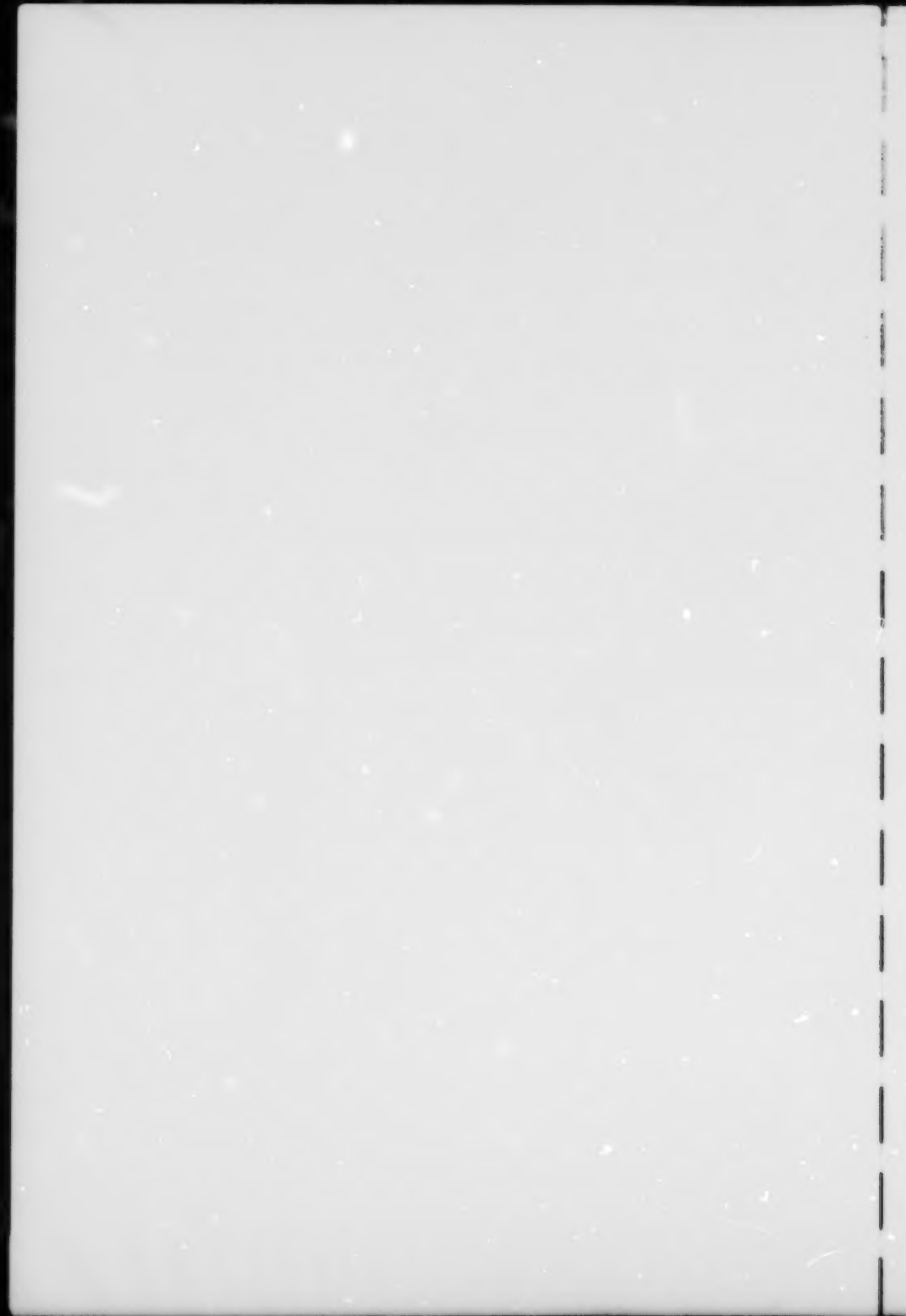


TABLE of CONTENTS

INTRODUCTION	1
CANCER INCIDENCE and MORTALITY	
Distribution by	
Place	2
Residence	2
Age and Sex	3
Residence	4
Digestive system	6
Oesophagus	8
Stomach	10
Large Bowel	12
Rectum and Rectosigmoid Junction	14
Liver and Biliary Passages	16
Pancreas	18
Buccal Cavity and Pharynx	20
Lip	22
Respiratory System	24
Larynx	26
Trachea, Bronchus and Lung	28
Breast	30
Urinary Tract	32
Bladder	34
Kidney	36
Skin	38
Melanoma	40
Other Malignant Neoplasms	42
Brain and Nervous System	44
Brain	46
Thyroid and Endocrine Glands	48
Thyroid	50
Bone	52
Connective Tissue	54
Lymphatic and Haematopoietic Systems	56
Leukemia	58
Hodgkins Disease	60
Lymphomas	62
Multiple Myelomas	64
Genital Organs	66
Cervix	68
Uterus	68
Ovary	68
Prostate	70

(continued)

TABLE of CONTENTS (continued)

CANCER - BY SITE	
Incidence	72
Mortality	75
TWENTY-YEAR TRENDS IN CANCER	
Bladder	76
Bone	77
Brain	78
Breast	79
Connective Tissue	80
Genital Organs: Female	81
Genital Organs: Male	82
Hodgkins Disease	83
Kidney	84
Large Bowel	85
Larynx	86
Leukaemia	87
Lip	88
Liver	89
Lymphoma	90
Melanoma	91
Multiple Myeloma	92
Oesophagus	93
Other Malignant Neoplasms (Skin)	94
Pancreas	95
Rectum	96
Stomach	97
Trachea, Bronchus and Lung	98
Thyroid Gland	99
RESEARCH GUIDELINES	100

INTRODUCTION

The Manitoba Cancer Treatment and Research Foundation is mandated to collect, register and maintain data on all cancer cases in Manitoba. The Central Cancer Registry is the repository for data received from a wide array of primary sources including pathology/cytology reports, admission/separation data from the hospital abstracting system of the Manitoba Health Services Commission, death registration data from the Department of Vital Statistics and clinical data from individual physicians' offices.

Incidence and mortality data for the calendar year of 1989 are presented in tabular and graphic formats.

Table Ia identifies the distribution of new cancer cases by location of diagnosis. The latter part of the table provides the distribution of registered cancer deaths by healthcare facility.

Table Ib specifies the urban (Winnipeg), rural and out-of-province distribution of newly diagnosed cancer cases and registered cancer deaths.

Table II represents incidence and mortality data by age and Statistics Canada census division. Cancer incidence and mortality rates per 100,000 population are provided. Rates are obtained by dividing the number of cases (incidence or mortality) for a specific census division by the 1986 Statistics Canada census figures for that division, multiplied by 100,000. The map opposite Table II correlates census division number with its geographic location.

Table III describes cancer incidence and mortality by age and sex. Cancer rates are obtained by dividing the number of cases (incidence or mortality) for a specific age group by the respective Statistics Canada population estimates for 1989, multiplied by 100,000.

Tables IV through XVI provide the age and sex distribution of cancer incidence and mortality by anatomical region, using the International Classification of Disease (9th Revision - Clinical Modification). Rates are calculated in the same manner as in Table III.

Table XVII summarizes the cancer incidence information presented in Tables IV through XVI.

Twenty-Year Trends for incidence and mortality rates are presented graphically for females, males and the total cancer population by anatomical region of the body.

1989 TABLE Ia PLACE

DIAGNOSIS	Male	Female	Total
Health Sciences Centre	523	549	1,072
St. Boniface General Hospital	472	508	980
Other Hospitals in Winnipeg	1,066	904	1,970
Other Hospitals in Manitoba	758	730	1,488
Hospitals Outside Manitoba	52	58	110
Doctors and Clinics	488	785	1,273
TOTAL	3,359	3,534	6,893

DEATH	Male	Female	Total
Hospitals- Winnipeg	739	619	1,358
Hospitals-Outside Winnipeg	367	266	633
Nursing Homes	43	57	100
Other- Winnipeg	45	31	76
Other-Outside Greater Winnipeg	43	31	74
TOTAL	1,237	1,004	2,241

1989 TABLE Ib RESIDENCE

DIAGNOSIS	Male	Female	Total
Winnipeg	1,845	2,052	3,897
Manitoba- Outside Winnipeg	1,393	1,346	2,739
Non-Manitoba Residence	112	126	238
Residence Unknown	9	10	19
TOTAL	3,359	3,534	6,893

DEATH	Male	Female	Total
Winnipeg	792	677	1,469
Manitoba- Outside Winnipeg	428	317	745
Non-Manitoba Residence	17	10	27
Residence Unknown	0	0	0
TOTAL	1,237	1,004	2,241

1989 TABLE II AGE and SEX DISTRIBUTION

INCIDENCE

Age Group	Male	Rate	Female	Rate	TOTAL	RATE
0 - 4	9	21.1	10	24.6	19	22.8
5 - 9	5	12.3	4	10.4	9	11.4
10 - 14	7	17.6	5	13.2	12	15.4
15 - 19	6	14.4	16	40.3	22	27.0
20 - 24	19	44.1	71	171.1	90	106.5
25 - 29	26	53.3	151	315.2	177	183.0
30 - 34	40	87.5	143	316.4	183	201.3
35 - 39	47	115.8	144	350.4	191	233.8
40 - 44	75	211.9	141	406.8	216	305.1
45 - 49	103	373.2	182	659.4	285	516.3
50 - 54	144	610.2	204	850.0	348	731.1
55 - 59	248	1,064.4	264	1,104.6	512	1,084.7
60 - 64	370	1,651.8	331	1,362.1	701	1,501.1
65 - 69	534	2,630.5	427	1,714.9	961	2,126.1
70 - 74	589	3,704.4	450	2,227.7	1,039	2,878.1
75 - 79	499	4,193.3	435	2,620.5	934	3,277.2
80 - 84	335	4,855.1	292	2,630.6	627	3,483.3
85 - 89	156	4,875.0	181	2,967.2	337	3,623.7
90 and over	70	5,833.3	99	2,911.8	169	3,673.9
Unknown	3	0.0	5	0.0	8	0.0
TOTAL	3,285	614.8	3,555	646.5	6,840	630.9

MORTALITY

Age Group	Male	Rate	Female	Rate	TOTAL	RATE
0 - 4	1	2.3	0	0.0	1	1.2
5 - 9	0	0.0	1	2.6	1	1.2
10 - 14	0	0.0	0	0.0	0	0.0
15 - 19	3	7.1	1	2.5	4	4.9
20 - 24	1	2.3	3	7.2	4	4.7
25 - 29	1	2.0	4	8.3	5	5.1
30 - 34	8	17.5	7	15.4	15	16.5
35 - 39	12	29.5	12	29.1	24	29.3
40 - 44	8	22.5	14	39.5	22	31.0
45 - 49	29	105.0	38	137.6	67	121.3
50 - 54	44	186.4	49	204.1	93	195.3
55 - 59	104	446.3	62	259.4	166	351.6
60 - 64	132	589.2	98	403.2	230	492.5
65 - 69	176	866.9	136	546.1	312	690.2
70 - 74	218	1,371.0	153	757.4	371	1,027.7
75 - 79	206	1,731.0	154	927.7	360	1,263.1
80 - 84	156	2,260.8	118	1,063.0	274	1,522.2
85 - 89	79	2,468.7	88	1,442.6	167	1,795.6
90 and over	42	3,500.0	56	1,647.0	98	2,130.4
Unknown	0	0.0	0	0.0	0	0.0
TOTAL	1,220	228.3	994	180.7	2,214	204.2

1989 TABLE III RESIDENTIAL DISTRIBUTION

INCIDENCE

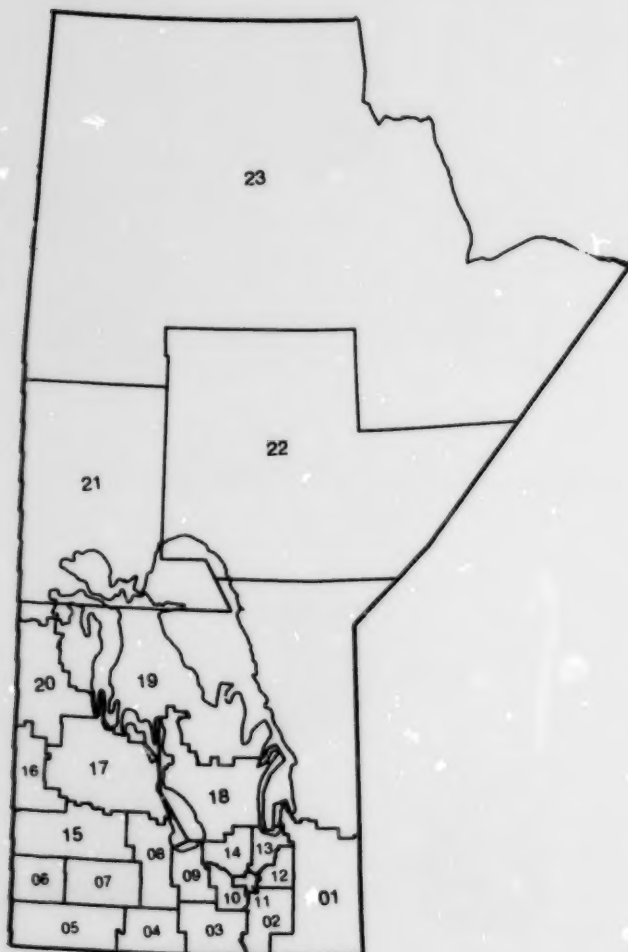
Residence	Male	Rate	Female	Rate	TOTAL	RATE
Division 1	44	523.8	49	623.4	93	571.9
Division 2	88	430.1	90	452.0	178	440.9
Division 3	134	704.3	102	525.9	236	614.2
Division 4	45	770.5	53	942.2	98	854.7
Division 5	80	965.6	69	840.4	149	903.3
Division 6	42	750.0	36	645.7	78	697.9
Division 7	219	784.8	223	763.5	442	773.9
Division 8	35	516.6	30	465.1	65	491.4
Division 9	77	667.2	56	478.6	133	572.2
Division 10	16	417.7	14	399.4	30	408.9
Winnipeg	1,844	642.6	2,057	668.7	3,901	656.1
Division 12	56	688.8	40	517.1	96	605.1
Division 13	75	441.8	71	426.5	146	434.2
Division 14	36	468.7	41	582.8	77	523.2
Division 15	112	934.1	96	811.4	208	873.2
Division 16	36	666.6	29	560.3	65	614.6
Division 17	90	675.1	125	947.6	215	810.7
Division 18	83	736.7	64	595.9	147	668.0
Division 19	12	252.8	12	273.9	24	263.0
Division 20	51	816.6	43	715.4	94	767.0
Division 21	39	318.4	53	448.3	92	382.2
Division 22	18	114.4	34	229.4	52	170.2
Division 23	6	110.5	11	227.5	17	165.6
TOTAL	3,238	618.2	3,398	630.1	6,636	624.2

MORTALITY

Residence	Male	Rate	Female	Rate	TOTAL	RATE
Division 1	10	119.0	8	101.7	18	110.7
Division 2	29	141.7	20	100.4	49	121.3
Division 3	35	183.9	25	128.8	60	156.1
Division 4	15	256.8	10	177.7	25	218.0
Division 5	12	144.8	14	170.5	26	157.6
Division 6	8	142.8	5	89.6	13	116.3
Division 7	78	279.5	63	215.7	141	246.8
Division 8	9	132.8	7	108.5	16	120.9
Division 9	21	181.9	15	128.2	36	154.9
Division 10	1	26.1	0	0.0	1	13.6
Winnipeg	792	276.0	677	220.0	1,469	247.0
Division 12	9	110.7	7	90.4	16	100.8
Division 13	25	147.2	24	144.1	49	145.7
Division 14	15	195.3	9	127.9	24	163.0
Division 15	42	350.2	29	245.1	71	298.0
Division 16	10	185.1	9	173.9	19	179.6
Division 17	48	360.0	26	197.1	74	279.0
Division 18	18	159.7	18	167.5	36	163.5
Division 19	1	21.0	1	22.8	2	21.9
Division 20	15	240.1	9	149.7	24	195.8
Division 21	22	179.6	11	93.0	33	137.1
Division 22	4	25.4	5	33.7	9	29.4
Division 23	1	18.4	2	41.3	3	29.2
TOTAL	1,220	232.9	994	184.3	2,214	208.2

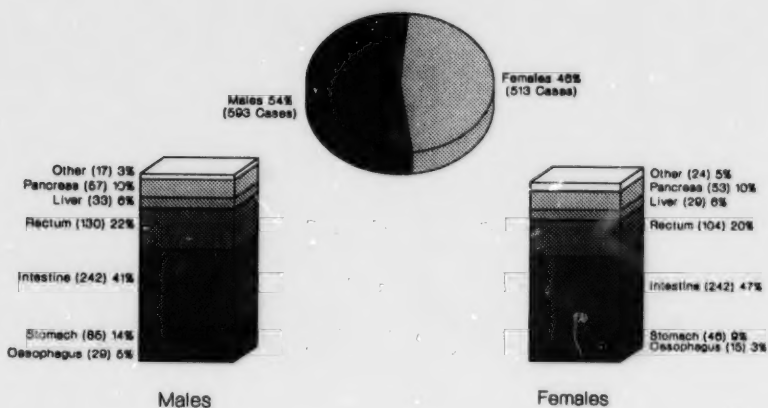
NOTE: Rates are based on Statistics Canada 1986 Census Data

STATISTICS CANADA
Standard Geographical Classification
Manitoba Census Divisions (1976)

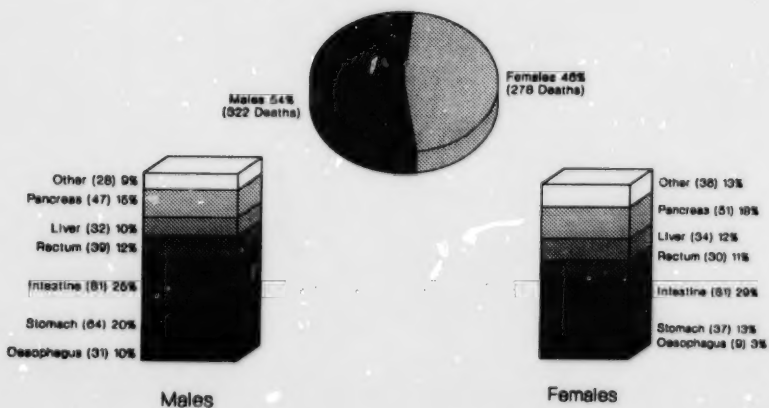


Digestive System 1989

Incidence



Mortality



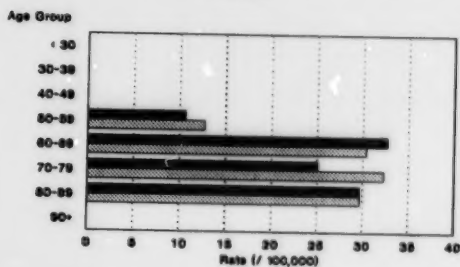
1989 TABLE IV DIGESTIVE SYSTEM

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	5	2.0	8	3.3	13	2.6
30-39	9	10.4	12	13.9	21	12.2
40-49	23	36.5	22	34.9	45	35.7
50-59	80	170.6	49	102.3	129	136.1
60-69	163	381.7	135	274.4	298	324.3
70-79	200	719.4	156	423.9	356	551.1
80-89	96	950.5	107	622.1	203	743.6
90 and over	16	1,333.3	23	676.5	39	847.8
Age not stated	1	0.0	1	0.0	2	0.0
TOTAL	593	111.0	513	93.3	1,106	102.0
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	5	5.7	2	2.3	7	4.0
40-49	6	9.5	6	9.5	12	9.5
50-59	36	76.7	21	43.8	57	60.1
60-69	86	201.4	60	121.9	146	158.8
70-79	114	410.0	91	247.2	205	317.3
80-89	58	574.2	76	441.8	134	490.8
90 and over	17	1,416.6	22	647.0	39	847.8
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	322	60.2	278	50.5	600	55.3

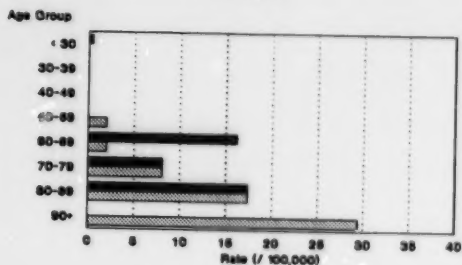
INCIDENCE & MORTALITY 1989

Oesophagus

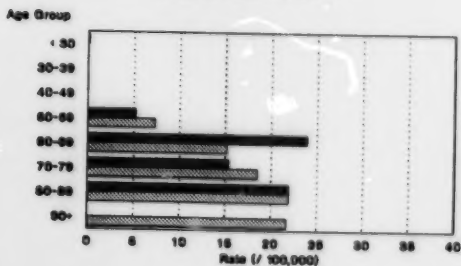
Males



Females



Total Population



Incidence Mortality

1989 TABLE IVa OESOPHAGUS

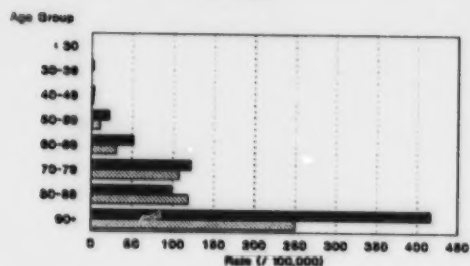
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	1	0.4	1	0.1
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	0	0.0	0	0.0
50-59	5	10.6	0	0.0	5	5.2
60-69	14	32.7	8	16.2	22	23.9
70-79	7	25.1	3	8.1	10	15.4
80-89	3	29.7	3	17.4	6	21.9
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	29	5.4	15	2.7	44	4.0

MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	0	0.0	0	0.0
50-59	6	12.7	1	2.0	7	7.3
60-69	13	30.4	1	2.0	14	15.2
70-79	9	32.3	3	8.1	12	18.5
80-89	3	29.7	3	17.4	6	21.9
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	31	5.8	9	1.6	40	3.6

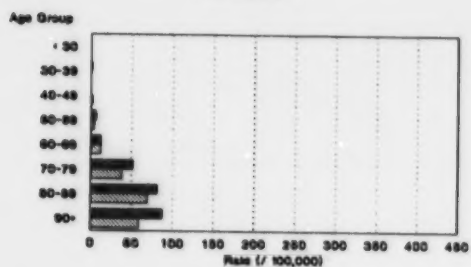
INCIDENCE & MORTALITY 1989

Stomach

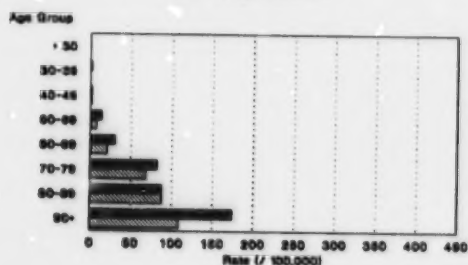
Males



Females



Total Population



Incidence Mortality

1989 TABLE IVb STOMACH

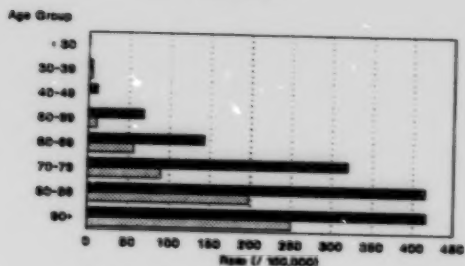
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	2	2.3	1	1.1	3	1.7
40-49	2	3.1	0	0.0	2	1.5
50-59	10	21.3	3	6.2	13	13.7
60-69	22	51.5	6	12.1	28	30.5
70-79	34	122.3	19	51.6	53	82.0
80-89	10	99.0	14	81.3	24	87.9
90 and over	5	416.6	3	88.2	8	173.9
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	85	15.9	46	8.3	131	12.1

MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	1	1.5	1	1.5	2	1.5
50-59	5	10.6	2	4.1	7	7.3
60-69	13	30.4	6	12.1	19	20.6
70-79	30	107.9	14	38.0	44	68.1
80-89	12	118.8	12	69.7	24	87.9
90 and over	3	250.0	2	58.8	5	108.6
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	64	11.9	37	6.7	101	9.3

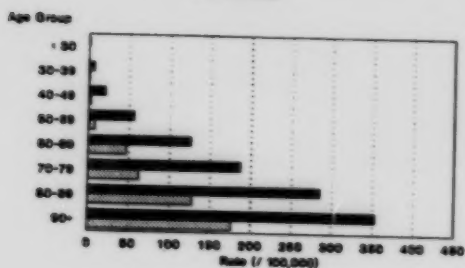
INCIDENCE & MORTALITY 1989

Large Bowel

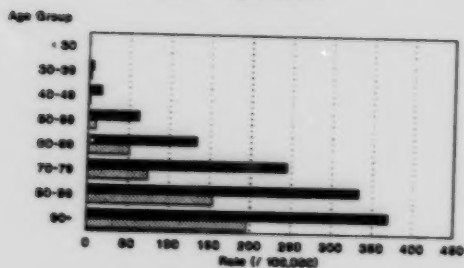
Males



Females



Total Population



Incidence Mortality

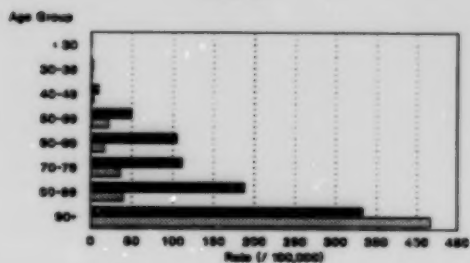
1989 TABLE IVc LARGE BOWEL

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	1	0.4	3	1.2	4	0.8
30-39	4	4.6	6	7.0	10	5.8
40-49	7	11.1	13	20.6	20	15.9
50-59	32	68.2	27	56.3	59	62.2
60-69	61	142.9	62	126.0	123	133.8
70-79	89	320.1	69	187.5	158	244.6
80-89	42	415.8	49	284.9	91	333.3
90 and over	5	416.6	12	352.9	17	369.6
Age not stated	1	0.0	1	0.0	2	0.0
TOTAL	242	45.2	242	44.0	484	44.6
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	4	4.6	1	1.1	5	2.8
40-49	0	0.0	2	3.1	2	1.5
50-59	5	10.6	4	8.3	9	9.4
60-69	24	56.2	23	46.7	47	51.1
70-79	25	89.9	23	62.5	48	74.3
80-89	20	198.0	22	127.9	42	153.8
90 and over	3	250.0	6	176.4	9	195.6
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	81	15.1	81	14.7	162	14.9

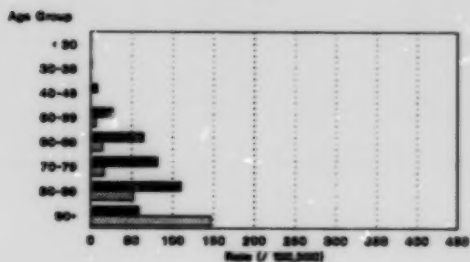
INCIDENCE & MORTALITY 1989

Rectum

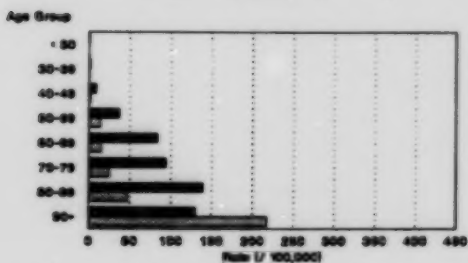
Males



Females



Total Population



Incidence Mortality

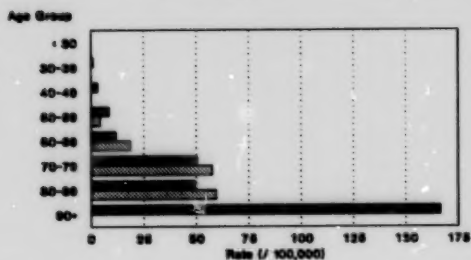
1989 TABLE IVd RECTUM and RECTOSIGMOID JUNCTION

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	1	0.3	2	0.8	3	0.6
30-39	2	2.3	1	1.1	3	1.7
40-49	6	9.5	5	7.9	11	8.7
50-59	22	46.9	13	27.1	35	36.9
60-69	45	105.4	32	65.0	77	83.8
70-79	31	111.5	30	81.5	61	94.4
80-89	19	188.1	19	110.5	38	139.2
90 and over	4	333.3	2	58.8	6	130.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	130	24.3	104	18.9	234	21.6
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	1	1.1	0	0.0	1	0.5
40-49	2	3.1	0	0.0	2	1.5
50-59	10	21.3	3	6.2	13	13.7
60-69	7	16.3	7	14.2	14	15.2
70-79	10	35.9	6	16.3	16	24.7
80-89	4	39.6	9	52.3	13	47.6
90 and over	5	416.6	5	147.0	10	217.3
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	39	7.2	30	5.4	69	6.3

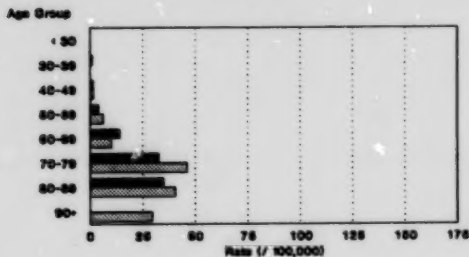
INCIDENCE & MORTALITY 1989

Liver

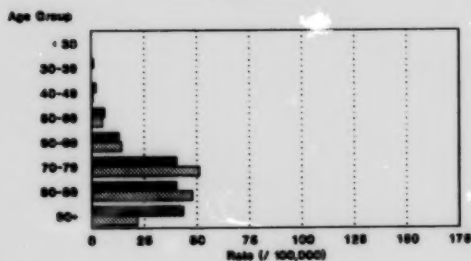
Males



Females



Total Population



Incidence Mortality

1989 TABLE IVc LIVER and BILIARY PASSAGES*

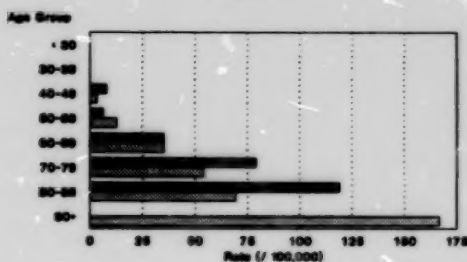
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	1	1.1	1	1.1	2	1.1
40-49	2	3.1	1	1.5	3	2.3
50-59	4	8.5	2	4.1	6	6.3
60-69	5	11.7	7	14.2	12	13.0
70-79	14	50.3	12	32.6	26	40.2
80-89	5	49.5	6	34.8	11	40.2
90 and over	2	166.6	0	0.0	2	43.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	33	6.1	29	5.2	62	5.7
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	1	1.5	1	0.7
50-59	2	4.2	3	6.2	5	5.2
60-69	8	18.7	5	10.1	13	14.1
70-79	16	57.5	17	46.1	33	51.0
80-89	6	59.4	7	40.6	13	47.6
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	32	5.9	34	6.1	66	6.0

* This table probably includes a number of cases of secondary metastatic disease - not defined in the death certificate.

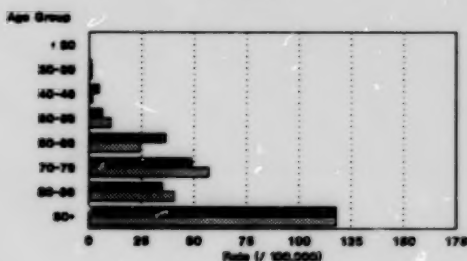
INCIDENCE & MORTALITY 1989

Pancreas

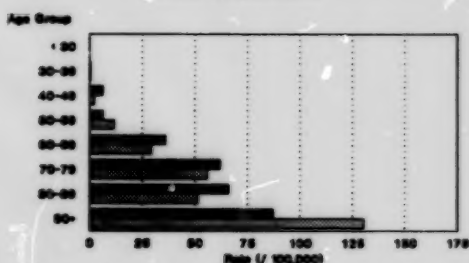
Males



Females



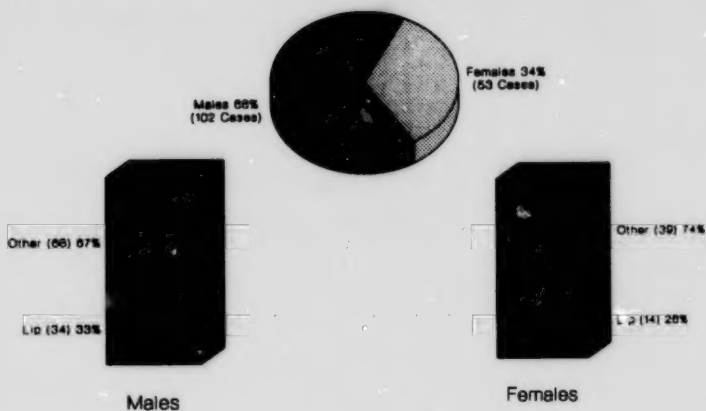
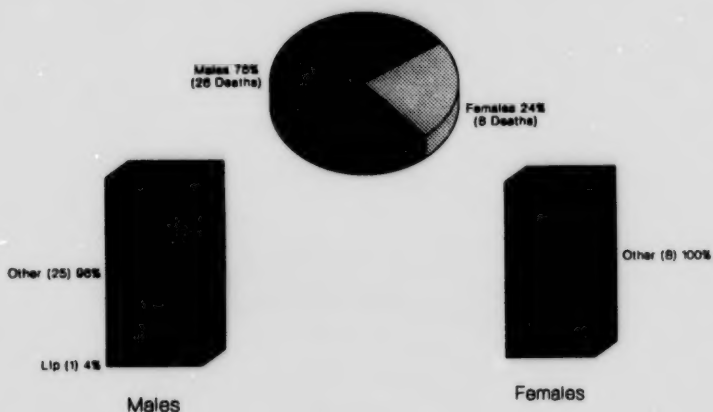
Total Population



Incidence Mortality

1989 TABLE IV PANCREAS

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	1	1.1	1	0.5
40-49	5	7.9	3	4.7	8	6.3
50-59	3	6.3	3	6.2	6	6.3
60-69	15	35.1	18	36.5	33	35.9
70-79	22	79.1	18	48.9	40	61.9
80-89	12	118.8	6	34.9	18	65.9
90 and over	0	0.0	4	117.6	4	87.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	57	10.6	53	9.6	110	10.1
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	1	1.1	1	0.5
40-49	2	3.1	1	1.5	3	2.3
50-59	6	12.7	5	10.4	11	11.6
60-69	15	35.1	12	24.3	27	29.3
70-79	15	53.9	21	57.0	36	55.7
80-89	7	69.3	7	40.6	14	51.2
90 and over	2	166.6	4	117.6	6	130.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	47	8.7	51	9.2	98	9.0

Buccal Cavity & Pharynx 1989**Incidence****Mortality**

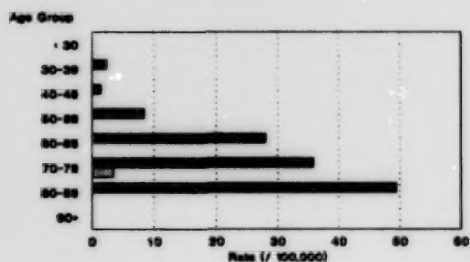
1989 TABLE V BUCCAL CAVITY and PHARYNX

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	4	1.6	4	0.7
30-39	4	4.6	2	2.3	6	3.4
40-49	7	11.1	2	3.1	9	7.1
50-59	22	46.9	7	14.6	29	30.5
60-69	35	81.9	15	30.5	50	54.4
70-79	25	89.9	15	40.8	40	61.9
80-89	9	89.1	7	40.6	16	58.6
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	102	19.1	53	9.6	155	14.3
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	2	3.1	0	0.0	2	1.5
50-59	7	14.9	0	0.0	7	7.3
60-69	6	14.0	3	6.0	9	9.7
70-79	10	35.9	3	8.1	13	20.1
80-89	0	0.0	1	5.8	1	3.6
90 and over	1	83.3	1	29.4	2	43.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	26	4.8	8	1.4	34	3.1

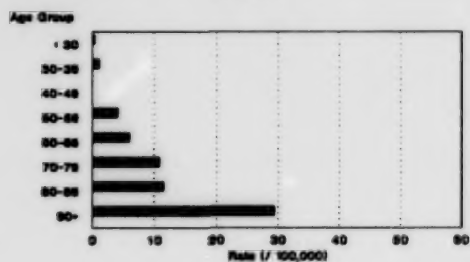
INCIDENCE & MORTALITY 1989

Lip

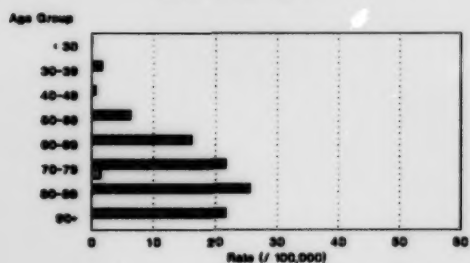
Males



Females



Total Population



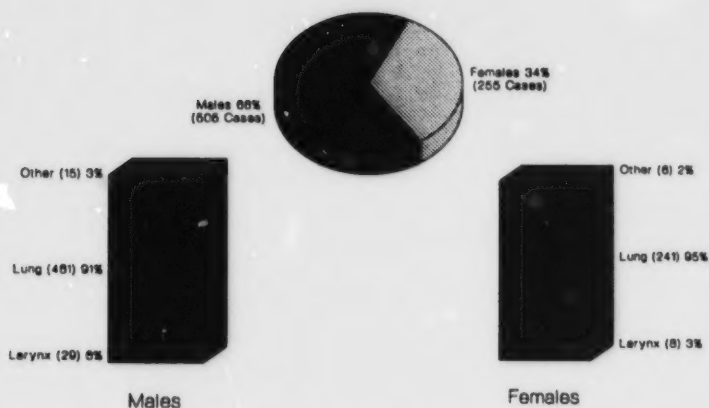
Incidence Mortality

1989 TABLE Va LIP

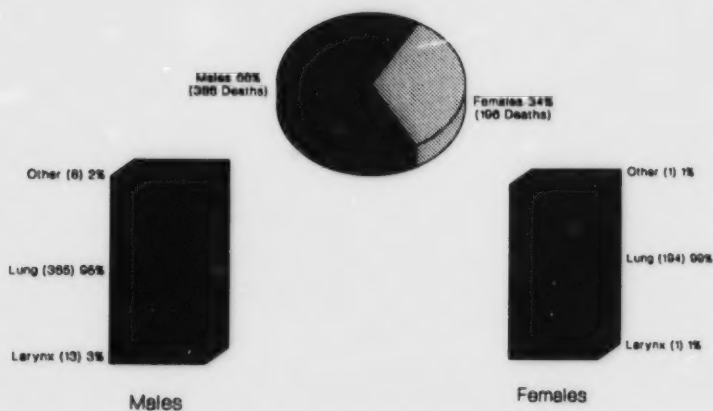
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	1	0.4	1	0.1
30-39	2	2.3	1	1.1	3	1.7
40-49	1	1.5	0	0.0	1	0.7
50-59	4	8.5	2	4.1	6	6.3
60-69	12	28.1	3	6.0	15	16.3
70-79	10	35.9	4	10.9	14	21.7
80-89	5	49.5	2	11.6	7	25.6
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	34	6.3	14	2.5	48	4.4
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	0	0.0	0	0.0
50-59	0	0.0	0	0.0	0	0.0
60-69	0	0.0	0	0.0	0	0.0
70-79	1	3.5	0	0.0	1	1.5
80-89	0	0.0	0	0.0	0	0.0
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	1	0.1	0	0.0	1	0.0

Respiratory System 1989

Incidence



Mortality



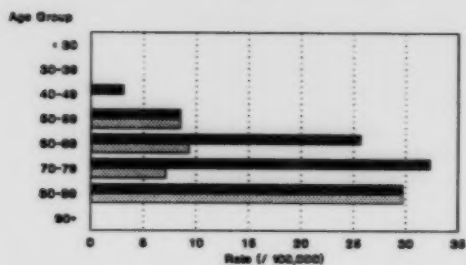
1989 TABLE VI RESPIRATORY SYSTEM

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	1	0.4	1	0.2
30-39	8	9.2	1	1.1	9	5.2
40-49	16	25.3	18	28.5	34	26.9
50-59	75	159.9	45	93.9	120	126.6
60-69	153	358.3	87	176.8	240	261.2
70-79	185	665.5	78	212.0	263	407.1
80-89	65	643.6	24	139.5	89	326.0
90 and over	3	250.0	1	29.4	4	86.9
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	505	94.5	255	46.4	760	70.1
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	1	1.1	0	0.0	1	0.5
40-49	11	17.4	17	26.9	28	22.2
50-59	64	136.4	26	54.2	90	94.9
60-69	105	245.9	68	138.2	173	188.2
70-79	138	496.4	61	165.7	199	308.0
80-89	64	633.6	21	122.0	85	311.3
90 and over	3	250.0	3	88.2	6	130.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	386	72.2	196	35.6	582	53.6

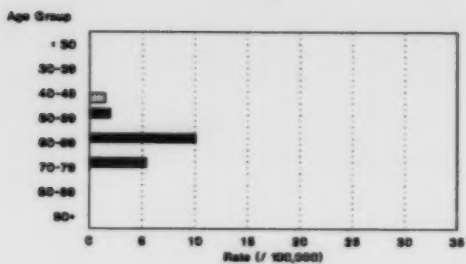
INCIDENCE & MORTALITY 1989

Larynx

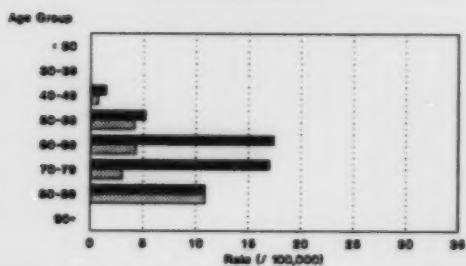
Males



Females



Total Population



■ Incidence ▨ Mortality

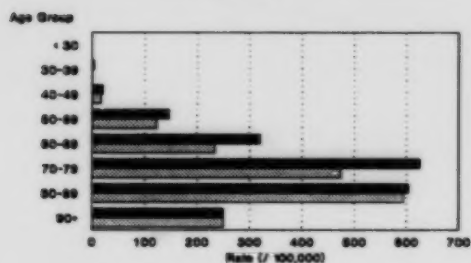
1989 TABLE VIa LARYNX

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	2	3.1	0	0.0	2	1.5
50-59	4	8.5	1	2.0	5	5.2
60-69	11	25.7	5	10.1	16	17.4
70-79	9	32.3	2	5.4	11	17.0
80-89	3	29.7	0	0.0	3	10.9
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	29	5.4	8	1.4	37	3.4
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	1	1.5	1	0.7
50-59	4	8.5	0	0.0	4	4.2
60-69	4	9.3	0	0.0	4	4.3
70-79	2	7.1	0	0.0	2	3.0
80-89	3	29.7	0	0.0	3	10.9
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	13	2.4	1	0.1	14	1.2

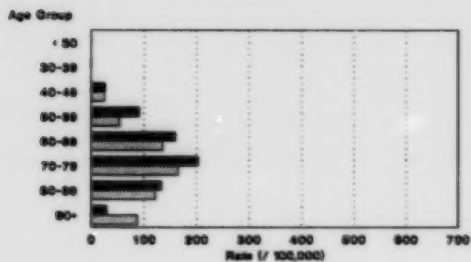
INCIDENCE & MORTALITY 1989

Trachea, Bronchus & Lung

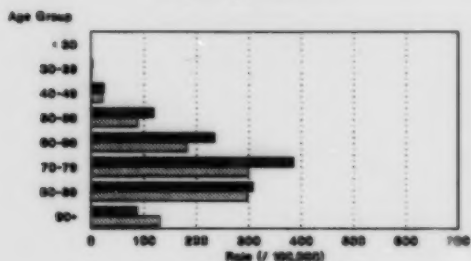
Males



Females



Total Population



Incidence Mortality

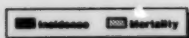
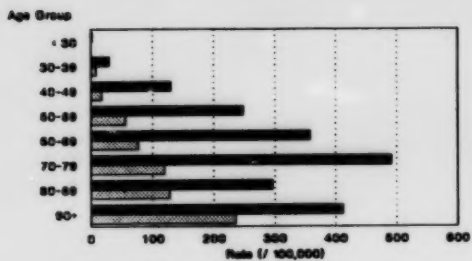
1989 TABLE VII TRACHEA, BRONCHUS and LUNG

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	1	0.4	1	0.2
30-39	4	4.6	1	1.1	5	2.8
40-49	13	20.6	17	26.9	30	23.8
50-59	69	147.1	44	91.9	113	119.2
60-69	137	320.8	79	160.6	216	235.0
70-79	174	625.9	75	203.8	249	385.4
80-89	61	604.0	23	133.7	84	307.7
90 and over	3	250.0	1	29.4	4	86.9
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	461	86.3	261	43.8	702	64.7
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	1	1.1	0	0.0	1	0.5
40-49	11	17.4	16	25.3	27	21.4
50-59	58	123.6	26	54.2	84	88.6
60-69	100	234.1	67	136.1	167	181.7
70-79	132	474.8	61	165.7	193	298.7
80-89	60	594.0	21	122.0	81	296.7
90 and over	3	250.0	3	88.2	6	130.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	365	68.3	194	35.2	559	51.5

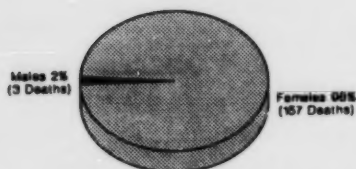
INCIDENCE & MORTALITY 1989

Breast

Females



Mortality

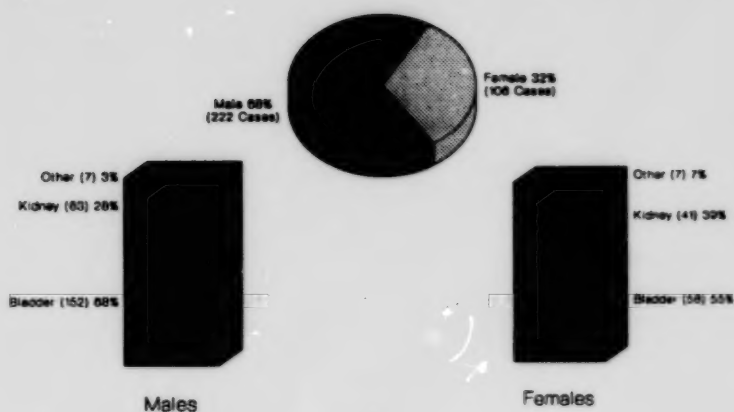


1989 TABLE VII BREAST

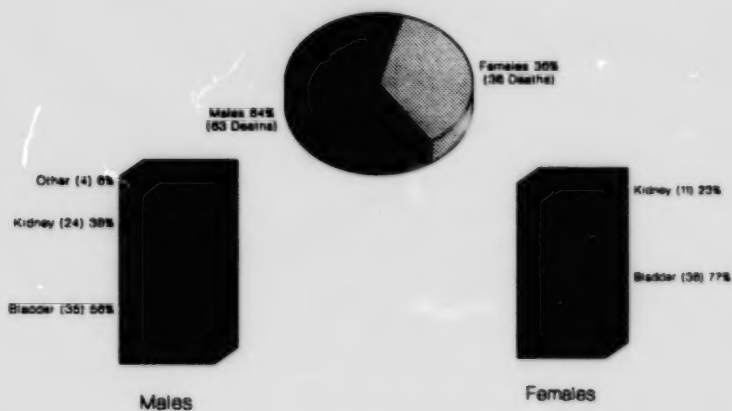
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	6	2.4	6	1.2
30-39	0	0.0	26	30.1	26	15.0
40-49	0	0.0	82	130.1	82	65.0
50-59	1	2.1	119	248.4	120	126.6
60-69	4	9.3	176	357.7	180	195.9
70-79	1	3.5	181	491.8	182	281.7
80-89	2	19.8	51	296.5	53	194.1
90 and over	1	83.3	14	411.7	15	326.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	9	1.6	655	119.1	664	61.2
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	7	8.1	7	4.0
40-49	0	0.0	11	17.4	11	8.7
50-59	0	0.0	27	56.3	27	28.4
60-69	1	2.3	38	77.2	39	42.4
70-79	1	3.5	44	119.5	45	69.6
80-89	0	0.0	22	127.9	22	80.5
90 and over	1	83.3	8	235.2	9	195.6
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	3	0.5	157	28.5	160	14.7

Urinary Tract 1989

Incidence



Mortality



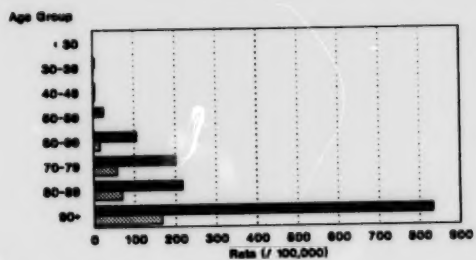
1989 TABLE VIII URINARY TRACT

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	2	0.8	2	0.3
30-39	6	6.9	3	3.4	9	5.2
40-49	10	15.8	5	7.9	15	11.9
50-59	26	55.4	16	33.4	42	44.3
60-69	67	156.9	20	40.6	87	94.6
70-79	75	269.7	39	105.9	114	176.4
80-89	28	277.2	20	116.2	48	175.8
90 and over	10	833.3	1	29.4	11	239.1
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	222	41.5	106	19.2	328	30.2
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	2	2.3	0	0.0	2	1.1
40-49	4	6.3	1	1.5	5	3.9
50-59	5	10.6	1	2.0	6	6.3
60-69	21	49.1	7	14.2	28	30.4
70-79	19	68.3	13	35.3	32	49.5
80-89	10	99.0	11	63.9	21	76.9
90 and over	2	166.6	3	88.2	5	108.6
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	63	11.7	36	6.5	99	9.1

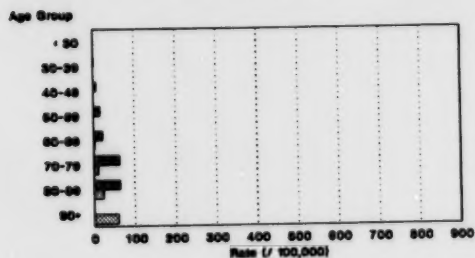
INCIDENCE & MORTALITY 1989

Bladder

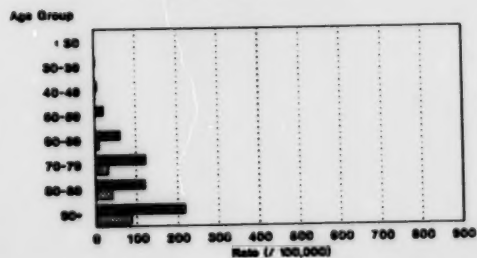
Males



Females



Total Population



Incidence Mortality

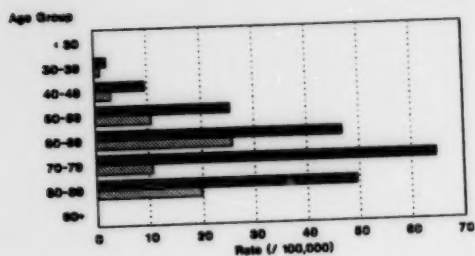
1989 TABLE VIIIa BLADDER

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	4	4.6	1	1.1	5	2.8
40-49	3	4.7	4	6.3	7	5.5
50-59	12	25.5	8	16.7	20	21.0
60-69	45	105.3	11	22.3	56	60.9
70-79	56	201.4	23	62.5	79	122.3
80-89	22	217.8	11	63.9	33	120.9
90 and over	10	833.3	0	0.0	10	217.3
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	152	28.4	58	10.5	210	19.4
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	1	1.1	0	0.0	1	0.5
40-49	2	3.1	0	0.0	2	1.5
50-59	0	0.0	0	0.0	0	0.0
60-69	7	16.3	1	2.0	8	8.7
70-79	16	57.5	4	10.8	20	30.9
80-89	7	69.3	4	23.2	11	40.2
90 and over	2	166.6	2	58.8	4	86.9
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	35	6.5	11	2.0	46	4.2

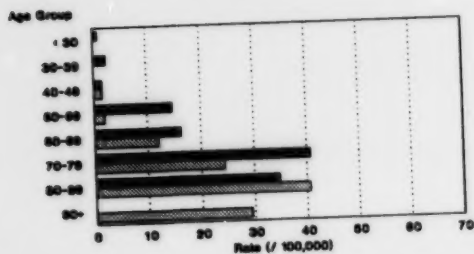
INCIDENCE & MORTALITY 1989

Kidney

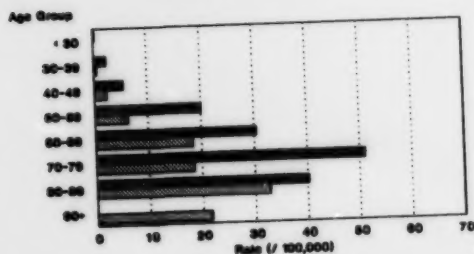
Males



Females



Total Population



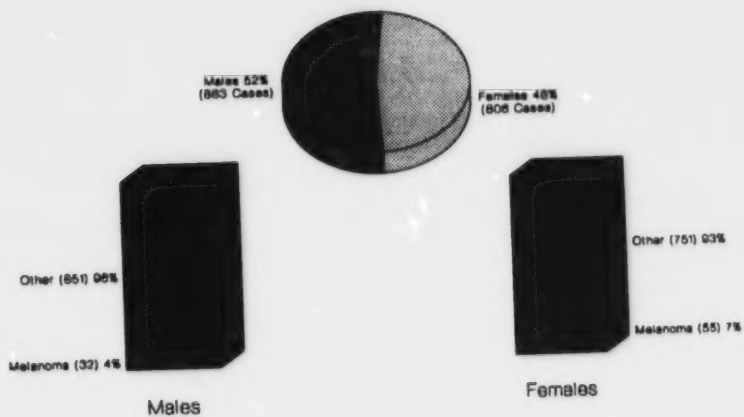
Incidence Mortality

1989 TABLE VIIIb KIDNEY

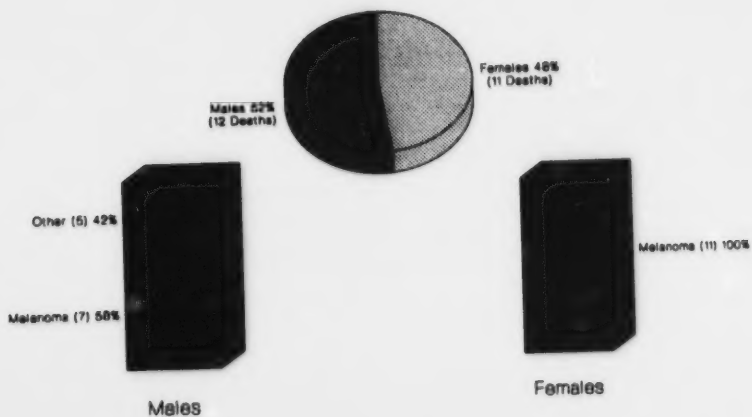
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	2	0.8	2	0.3
30-39	2	2.3	2	2.3	4	2.3
40-49	6	9.5	1	1.5	7	5.5
50-59	12	25.5	7	14.6	19	20.0
60-69	20	46.8	8	16.2	28	30.4
70-79	18	64.7	15	40.7	33	51.0
80-89	5	49.5	6	34.8	11	40.2
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	63	11.7	41	7.4	104	9.5
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	1	1.1	0	0.0	1	0.5
40-49	2	3.1	1	1.5	3	2.3
50-59	5	10.6	1	2.0	6	6.3
60-69	11	25.7	6	12.1	17	18.4
70-79	3	10.7	9	24.4	12	18.5
80-89	2	19.8	7	40.6	9	32.9
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	24	4.4	25	4.5	49	4.5

Skin 1989

Incidence



Mortality



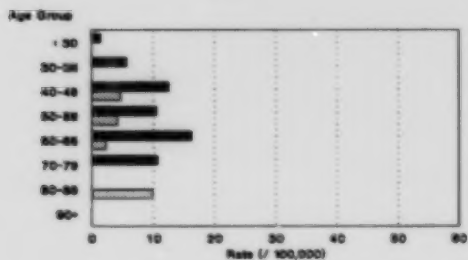
1989 TABLE IX SKIN

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	16	6.2	20	8.1	36	7.1
30-39	33	38.2	38	44.0	71	41.1
40-49	84	133.3	61	96.8	145	115.0
50-59	113	240.9	92	192.1	205	216.2
60-69	222	519.9	163	331.3	385	418.9
70-79	261	938.8	217	589.7	478	739.9
80-89	129	1,277.2	167	970.9	296	1,084.2
90 and over	23	1,916.6	45	1,323.5	68	1,478.2
Age not stated	2	0.0	3	0.0	5	0.0
TOTAL	883	165.3	806	146.6	1,689	155.8
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	3	4.7	1	1.5	4	3.1
50-59	3	6.3	3	6.2	6	6.3
60-69	2	4.6	3	6.0	5	5.4
70-79	1	3.5	1	2.7	2	3.0
80-89	3	29.7	2	11.6	5	18.3
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	12	2.2	11	2.0	23	2.1

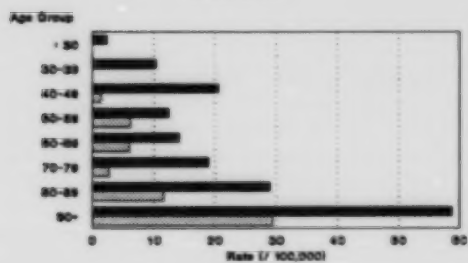
INCIDENCE & MORTALITY 1989

Melanoma

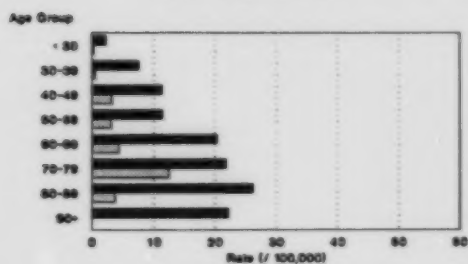
Males



Females



Total Population



■ Incidence □ Mortality

1989 TABLE IXa MELANOMA

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	4	1.5	6	2.4	10	1.9
30-39	5	5.7	9	10.4	14	8.1
40-49	8	12.6	13	20.6	21	16.6
50-59	5	10.6	6	12.5	11	11.6
60-69	7	16.3	7	14.2	14	15.2
70-79	3	10.7	7	19.0	10	15.4
80-89	0	0.0	5	29.0	5	18.3
90 and over	0	0.0	2	58.8	2	43.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	32	5.9	55	10.0	87	8.0

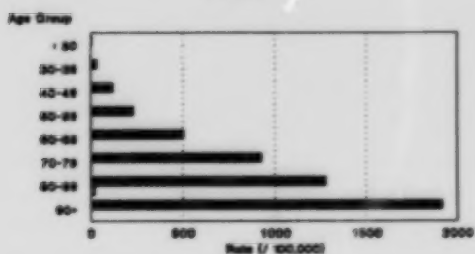
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	3	4.7	1	1.5	4	3.1
50-59	2	4.2	3	6.2	5	5.2
60-69	1	2.3	3	6.0	4	4.3
70-79	0	0.0	1	2.7	1	1.5
80-89	1	9.9	2	11.6	3	10.9
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	7	1.3	11	2.0	18	1.6

INCIDENCE & MORTALITY 1989

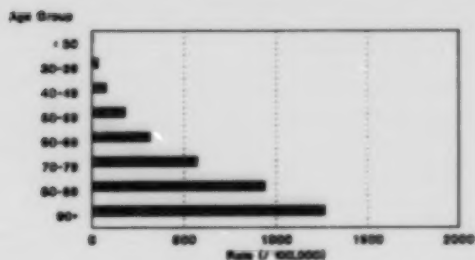
Other Malignant Neoplasms

Skin

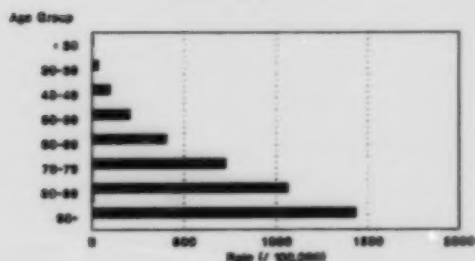
Males



Females



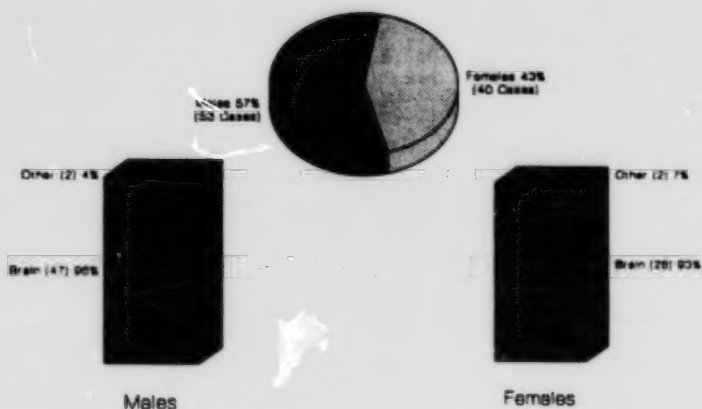
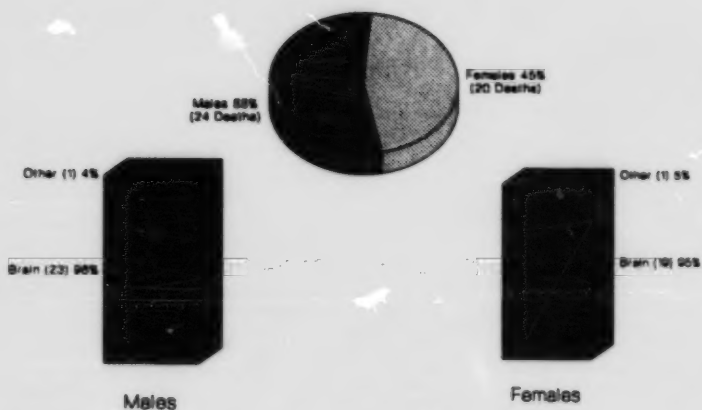
Total Population



Incidence Mortality

1989 TABLE IXb OTHER MALIGNANT NEOPLASMS (SKIN)

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	12	4.6	14	5.6	26	5.1
30-39	28	32.4	29	33.6	57	33.0
40-49	76	120.6	48	76.1	124	98.4
50-59	108	230.2	86	179.5	194	204.6
60-69	215	503.5	156	317.1	371	403.7
70-79	258	928.1	210	570.7	468	724.5
80-89	129	1,277.2	162	941.8	291	1,065.9
90 and over	23	1,916.6	43	1,264.7	66	1,434.7
Age not stated	2	0.0	3	0.0	5	0.0
TOTAL	851	159.3	751	136.6	1,602	147.8
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	0	0.0	0	0.0
50-59	1	2.1	0	0.0	1	1.0
60-69	1	2.3	0	0.0	1	1.0
70-79	1	3.5	0	0.0	1	1.5
80-89	2	19.8	0	0.0	2	7.3
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	5	0.9	0	0.0	5	0.4

Brain & Nervous System 1989**Incidence****Mortality**

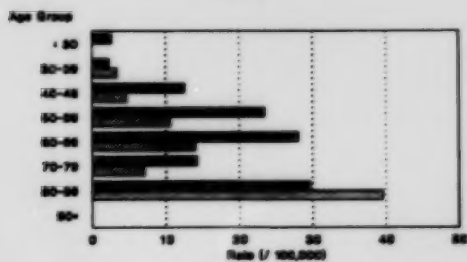
1969 TABLE X BRAIN and NERVOUS SYSTEM

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	10	3.9	3	1.2	13	2.6
30-39	2	2.3	3	3.5	5	2.9
40-49	8	12.6	2	3.2	10	7.9
50-59	11	23.5	8	16.7	19	20.0
60-69	14	32.8	11	22.3	25	27.2
70-79	4	14.3	7	19.0	11	17.0
80-89	4	39.6	5	29.1	9	33.0
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	53	9.9	40	7.3	93	8.6
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	2	0.8	2	0.3
30-39	3	3.4	1	1.1	4	2.3
40-49	3	4.7	0	0.0	3	2.3
50-59	6	12.7	6	12.5	12	12.6
60-69	6	14.0	4	8.1	10	10.8
70-79	2	7.1	5	13.5	7	10.8
80-89	4	39.6	2	11.6	6	21.9
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	24	4.4	20	3.6	44	4.0

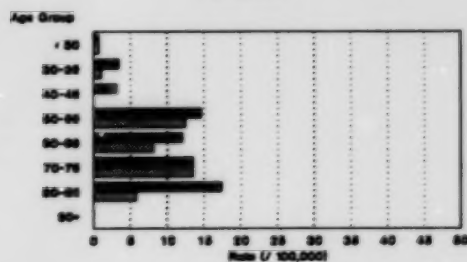
INCIDENCE & MORTALITY 1989

Brain

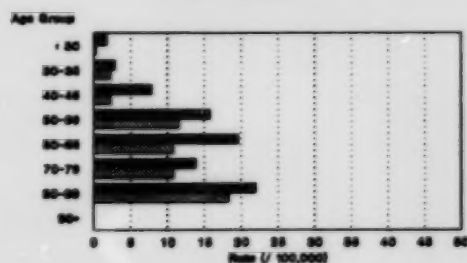
Males



Females



Total Population

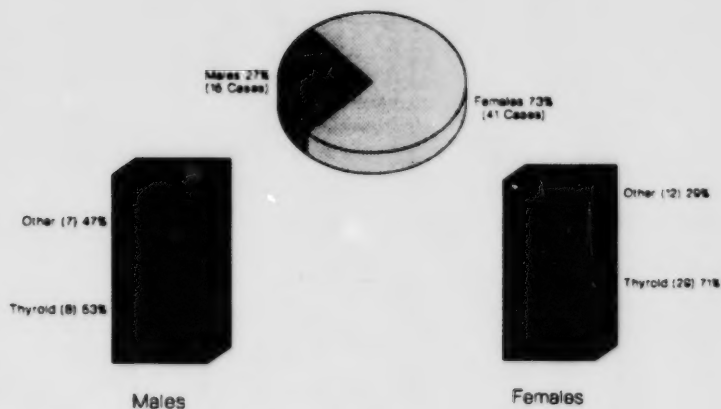
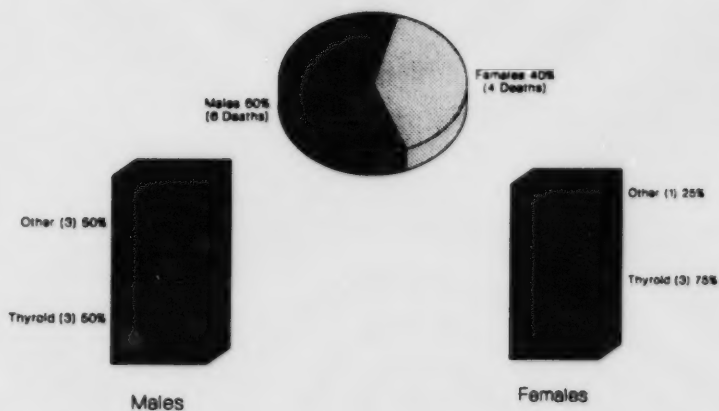


Incidence Mortality

1969 TABLE Xa BRAIN

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	7	2.7	2	0.8	9	1.8
30-39	2	2.3	3	3.5	5	2.9
40-49	8	12.6	2	3.2	10	7.9
50-59	11	23.5	7	14.6	18	19.0
60-69	12	28.1	6	12.1	18	19.6
70-79	4	14.3	5	13.5	9	13.9
80-89	3	29.7	3	17.4	6	22.0
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	47	8.8	28	5.1	75	6.9

MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	2	0.8	2	0.3
30-39	3	3.4	1	1.1	4	2.3
40-49	3	4.7	0	0.0	3	2.3
50-59	5	10.6	6	12.5	11	11.6
60-69	6	14.0	4	8.1	10	10.8
70-79	2	7.1	5	13.5	7	10.8
80-89	4	39.6	1	5.8	5	18.3
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	23	4.3	19	3.4	42	3.8

Thyroid & Endocrine Glands 1989**Incidence****Mortality**

1989 TABLE XI THYROID and ENDOCRINE GLANDS

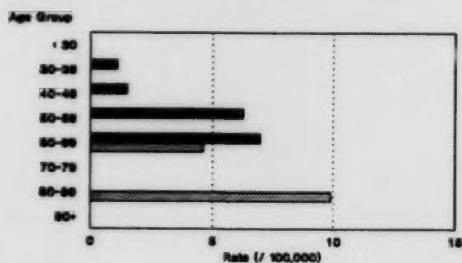
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	2	0.8	8	3.3	10	2.0
30-39	2	2.3	7	8.1	9	5.2
40-49	1	1.5	5	7.9	6	4.8
50-59	5	10.7	7	14.6	12	12.7
60-69	5	11.7	6	12.2	11	12.0
70-79	0	0.0	6	16.3	6	9.3
80-89	0	0.0	1	5.8	1	3.6
90 and over	0	0.0	1	29.4	1	21.7
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	15	2.8	41	7.5	56	5.2

MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	0	0.0	0	0.0
50-59	1	2.1	0	0.0	1	1.0
60-69	4	9.3	1	2.0	5	5.4
70-79	0	0.0	3	8.1	3	4.6
80-89	1	9.9	0	0.0	1	3.6
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	6	1.1	4	0.7	10	0.9

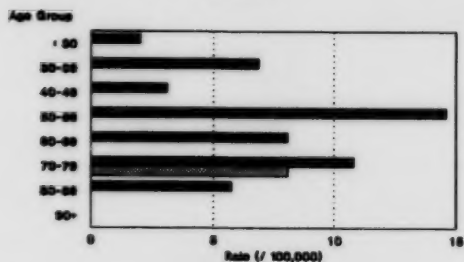
INCIDENCE & MORTALITY 1989

Thyroid

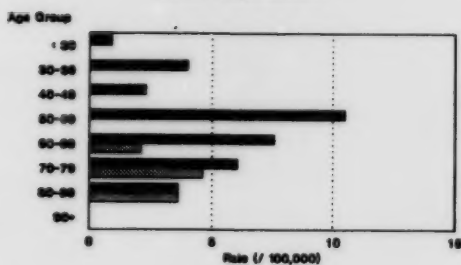
Males



Females



Total Population



Incidence Mortality

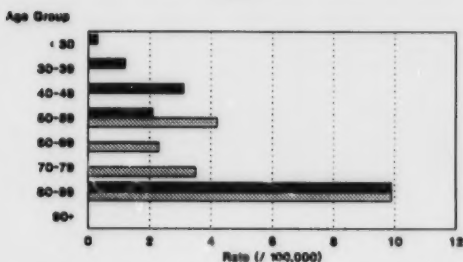
1989 TABLE XIa THYROID

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	5	2.0	5	0.9
30-39	1	1.1	6	6.9	7	4.0
40-49	1	1.5	2	3.1	3	2.3
50-59	3	6.3	7	14.6	10	10.5
60-69	3	7.0	4	8.1	7	7.6
70-79	0	0.0	4	10.8	4	6.1
80-89	0	0.0	1	5.8	1	3.6
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	8	1.5	29	5.2	37	3.4
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	0	0.0	0	0.0
50-59	0	0.0	0	0.0	0	0.0
60-69	2	4.6	0	0.0	2	2.1
70-79	0	0.0	3	8.1	3	4.6
80-89	1	9.9	0	0.0	1	3.6
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	3	0.5	3	0.5	6	0.5

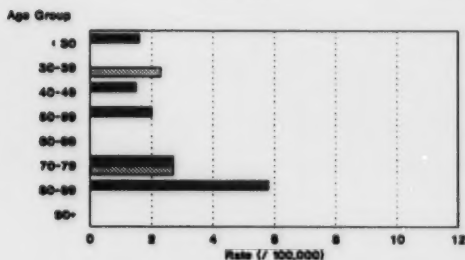
INCIDENCE & MORTALITY 1989

Bone

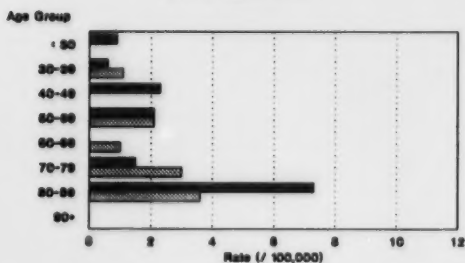
Males



Females



Total Population



Incidence Mortality

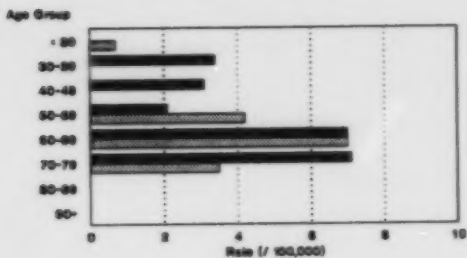
1989 TABLE XII BONE

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	1	0.3	4	1.6	5	0.9
30-39	1	1.2	0	0.0	1	0.6
40-49	2	3.1	1	1.5	3	2.3
50-59	1	2.1	1	2.0	2	2.1
60-69	0	0.0	0	0.0	0	0.0
70-79	0	0.0	1	2.7	1	1.5
80-89	1	9.9	1	5.8	2	7.3
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	6	1.1	8	1.4	14	1.3
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	2	2.3	2	1.1
40-49	0	0.0	0	0.0	0	0.0
50-59	2	4.2	0	0.0	2	2.1
60-69	1	2.3	0	0.0	1	1.0
70-79	1	3.5	1	2.7	2	3.0
80-89	1	9.9	0	0.0	1	3.6
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	5	0.9	3	0.5	8	0.7

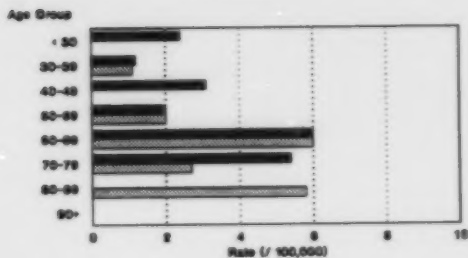
INCIDENCE & MORTALITY 1989

Connective Tissue

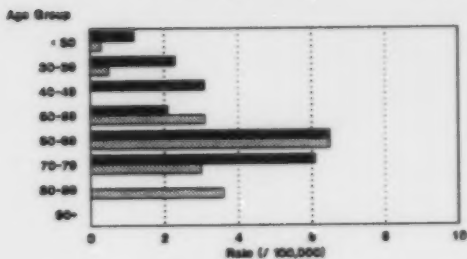
Males



Females



Total Population



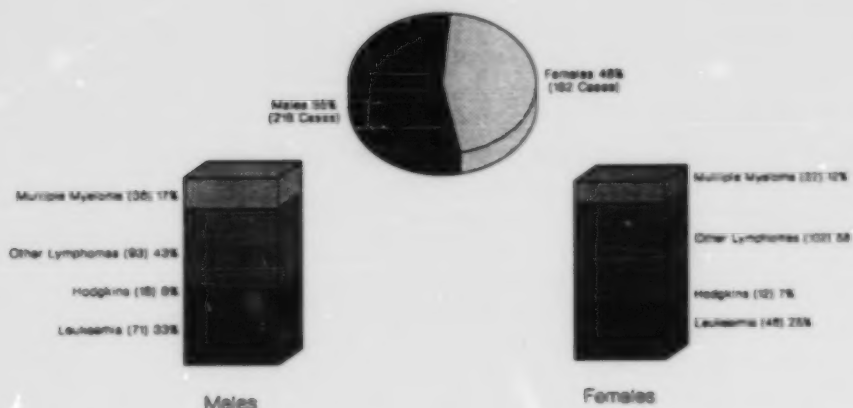
Incidence Mortality

1989 TABLE XIII CONNECTIVE TISSUE

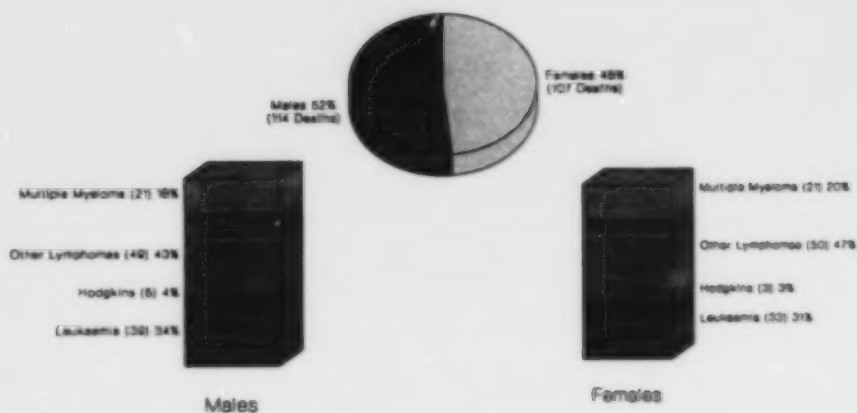
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	6	2.4	6	1.2
30-39	3	3.4	1	1.2	4	2.3
40-49	2	3.1	2	3.1	4	3.1
50-59	1	2.1	1	2.0	2	2.1
60-69	3	7.0	3	6.0	6	6.5
70-79	2	7.1	2	5.4	4	6.1
80-89	0	0.0	0	0.0	0	0.0
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	11	2.0	15	2.7	26	2.4
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	2	0.7	0	0.0	2	0.3
30-39	0	0.0	1	1.1	1	0.5
40-49	0	0.0	0	0.0	0	0.0
50-59	2	4.2	1	2.0	3	3.1
60-69	3	7.0	3	6.0	6	6.5
70-79	1	3.5	1	2.7	2	3.0
80-89	0	0.0	1	5.8	1	3.6
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	8	1.4	7	1.2	15	1.3

Lymphatic & Haematopoietic Systems 1989

Incidence



Mortality



1989 TABLE XIV LYMPHATIC & HAEMATOPOIETIC SYSTEMS

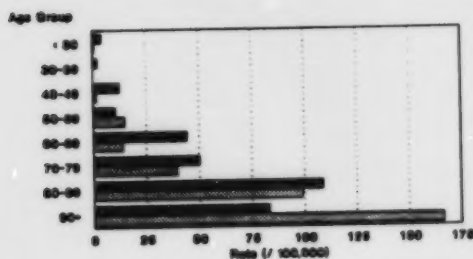
INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	23	8.9	16	6.5	39	7.7
30-39	14	16.2	6	6.9	20	11.5
40-49	19	30.1	15	23.8	34	27.0
50-59	25	53.3	16	33.4	41	43.2
60-69	52	121.8	38	77.2	90	97.9
70-79	50	179.9	52	141.3	102	157.9
80-89	33	326.7	33	191.9	66	241.8
90 and over	2	166.6	6	176.4	8	173.9
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	218	40.8	182	33.1	400	36.9

MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	4	1.5	5	2.0	9	1.7
30-39	5	5.7	1	1.1	6	3.4
40-49	5	7.9	4	6.3	9	7.1
50-59	15	31.9	7	14.6	22	23.2
60-69	20	46.8	13	26.4	33	35.9
70-79	37	133.0	35	95.1	72	111.4
80-89	25	247.5	31	180.2	56	205.1
90 and over	3	250.0	11	323.5	14	304.3
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	114	21.7	107	19.4	221	20.3

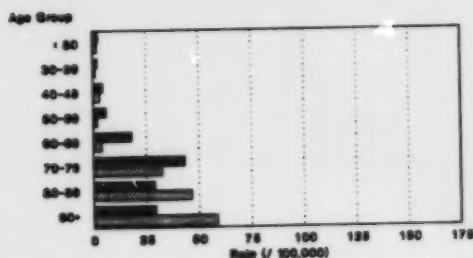
INCIDENCE & MORTALITY 1989

Leukaemia

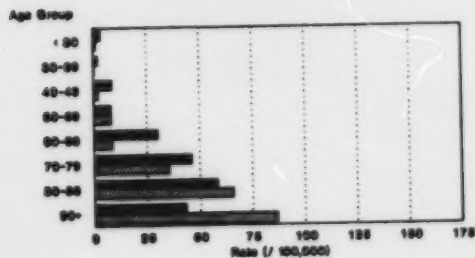
Males



Females



Total Population



Incidence Mortality

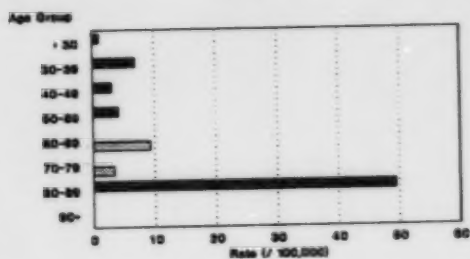
1989 TABLE XIVa LEUKAEMIA

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	11	4.2	7	2.5	18	3.5
30-39	2	2.3	2	2.3	4	2.3
40-49	8	12.6	3	4.7	11	8.7
50-59	5	10.6	3	6.2	8	8.4
60-69	19	44.4	9	18.2	28	30.4
70-79	14	50.3	16	43.4	30	46.4
80-89	11	108.9	5	29.0	16	58.6
90 and over	1	83.3	1	29.4	2	43.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	71	13.2	46	8.3	117	10.7
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	2	0.7	5	2.0	7	1.3
30-39	0	0.0	1	1.1	1	0.5
40-49	1	1.5	2	3.1	3	2.3
50-59	7	14.9	1	2.0	8	8.4
60-69	6	14.0	2	4.0	8	8.7
70-79	11	39.5	12	32.6	23	35.6
80-89	10	99.0	8	46.5	18	65.9
90 and over	2	166.6	2	58.8	4	86.9
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	39	7.2	33	6.0	72	6.6

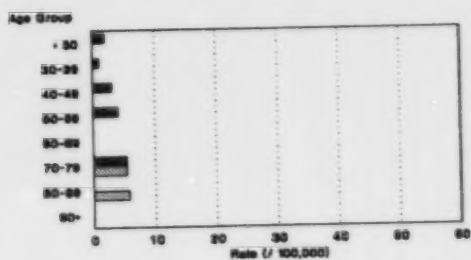
INCIDENCE & MORTALITY 1989

Hodgkins Disease

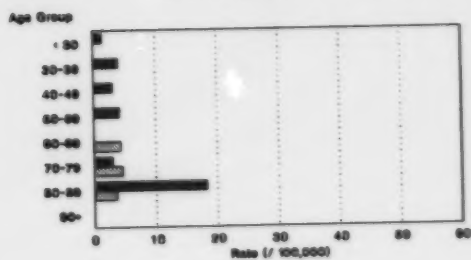
Males



Females



Total Population



Incidence Mortality

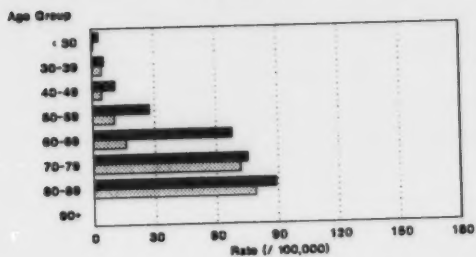
1989 TABLE XIVb HODGKINS DISEASE

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	3	1.1	5	2.0	8	1.5
30-39	6	6.9	1	1.1	7	4.0
40-49	2	3.1	2	3.1	4	3.1
50-59	2	4.2	2	4.1	4	4.2
60-69	0	0.0	0	0.0	0	0.0
70-79	0	0.0	2	5.4	2	3.0
80-89	5	49.5	0	0.0	5	18.3
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	18	3.3	12	2.2	30	2.8
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	0	0.0	0	0.0	0	0.0
40-49	0	0.0	0	0.0	0	0.0
50-59	0	0.0	0	0.0	0	0.0
60-69	4	9.3	0	0.0	4	4.3
70-79	1	3.5	2	5.4	3	4.6
80-89	0	0.0	1	5.8	1	3.6
90 and over	0	0.0	0	0.0	0	0.0
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	5	0.9	3	0.5	8	0.7

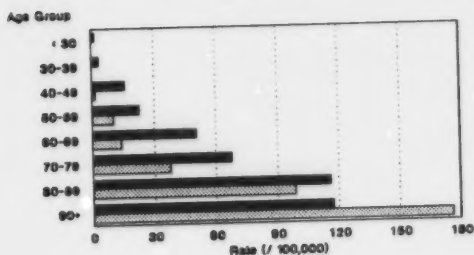
INCIDENCE & MORTALITY 1989

Lymphomas

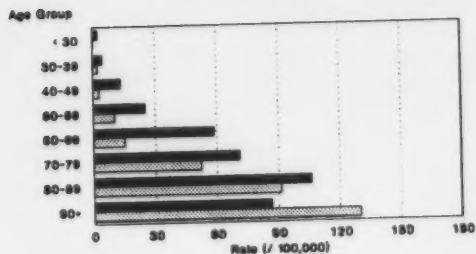
Males



Females



Total Population



Incidence Mortality

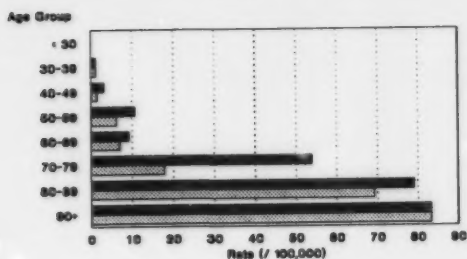
1989 TABLE XIVc LYMPHOMAS

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	9	3.5	4	1.6	13	2.5
30-39	5	5.7	3	3.4	8	4.6
40-49	7	11.1	10	15.9	17	13.5
50-59	13	27.7	11	22.9	24	25.3
60-69	29	67.9	25	50.8	54	58.8
70-79	21	75.5	25	67.9	46	71.2
80-89	9	89.1	20	116.3	29	106.2
90 and over	0	0.0	4	117.6	4	86.9
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	93	17.4	102	18.5	195	18.0
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	2	0.7	0	0.0	2	0.3
30-39	4	4.6	0	0.0	4	2.3
40-49	3	4.7	1	1.5	4	3.1
50-59	5	10.6	5	10.4	10	10.5
60-69	7	16.3	7	14.2	14	15.2
70-79	20	71.9	14	38.0	34	52.6
80-89	8	79.2	17	98.8	25	91.5
90 and over	0	0.0	6	176.4	6	130.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	49	9.1	50	9.0	99	9.1

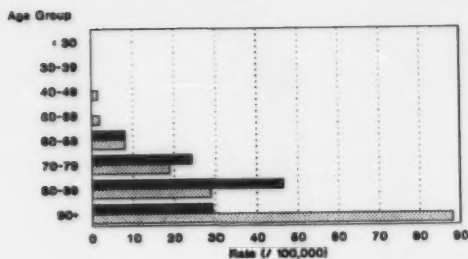
INCIDENCE & MORTALITY 1989

Multiple Myeloma

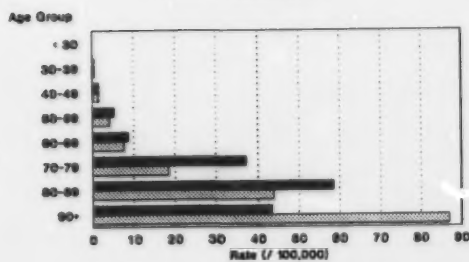
Males



Females



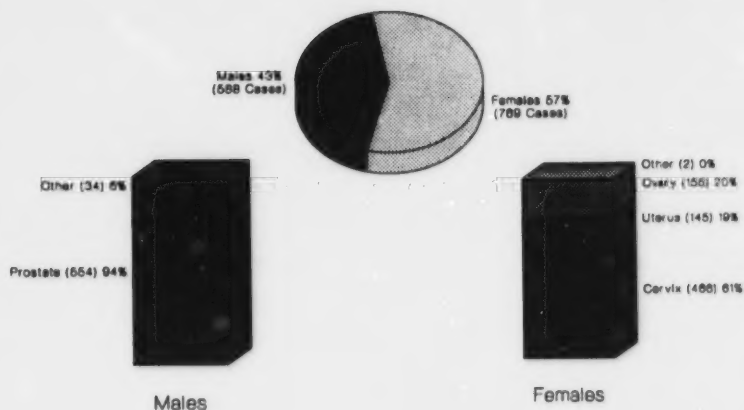
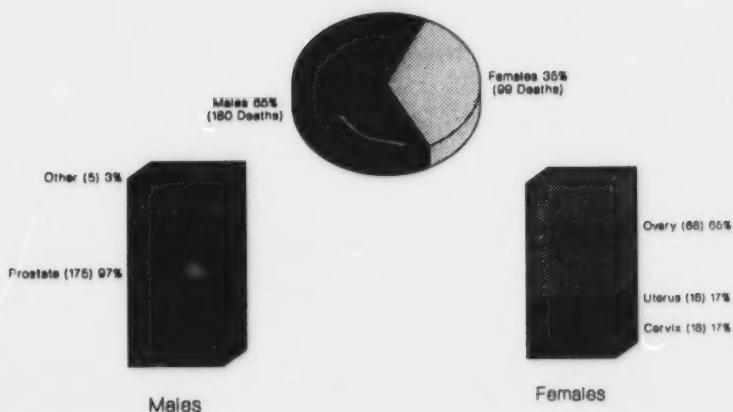
Total Population



Incidence Mortality

1989 TABLE XIVd MULTIPLE MYELOMA

INCIDENCE	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	1	1.1	0	0.0	1	0.5
40-49	2	3.1	0	0.0	2	1.5
50-59	5	10.6	0	0.0	5	5.2
60-69	4	9.3	4	8.1	8	8.7
70-79	15	53.9	9	24.4	24	37.1
80-89	8	79.2	8	46.5	16	58.6
90 and over	1	83.3	1	29.4	2	43.4
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	36	6.7	22	4.0	58	5.3
MORTALITY	Male	Rate	Female	Rate	TOTAL	RATE
Under 30	0	0.0	0	0.0	0	0.0
30-39	1	1.1	0	0.0	1	0.5
40-49	1	1.5	1	1.5	2	1.5
50-59	3	6.3	1	2.0	4	4.2
60-69	3	7.0	4	8.1	7	7.6
70-79	5	17.9	7	19.0	12	18.5
80-89	7	69.3	5	29.0	12	43.9
90 and over	1	83.3	3	88.2	4	86.9
Age not stated	0	0.0	0	0.0	0	0.0
TOTAL	21	3.9	21	3.8	42	3.8

Genital Organs 1989**Incidence****Mortality**

1989 TABLE XVa FEMALE GENITAL ORGANS
INCIDENCE

All Organs	N	Rate	Cervix Uteri	N*	Rate
Under 30	180	73.2	Under 30	161	65.5
30-39	184	213.2	30-39	167	193.5
40-49	100	158.7	40-49	63	100.0
50-59	99	206.7	50-59	30	62.6
60-69	80	162.6	60-69	22	44.7
70-79	90	244.6	70-79	16	43.4
80-89	32	186.0	80-89	7	40.6
90 and over	3	88.2	90 and over	0	0.0
Age not stated	1	0.0	Age not stated	0	0.0
TOTAL	769	139.8	TOTAL	466	84.7

MORTALITY

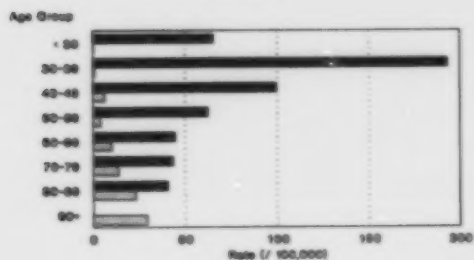
All Organs	N	Rate	Cervix Uteri	N*	Rate
Under 30	1	0.4	Under 30	1	0.4
30-39	4	4.6	30-39	1	1.1
40-49	9	14.2	40-49	4	6.3
50-59	13	27.1	50-59	2	4.1
60-69	24	48.7	60-69	5	10.1
70-79	26	70.6	70-79	5	13.5
80-89	19	110.4	80-89	4	23.2
90 and over	3	88.2	90 and over	1	29.4
Age not stated	0	0.0	Age not stated	0	0.0
TOTAL	99	18.0	TOTAL	23	4.1

* In situ cancers included.

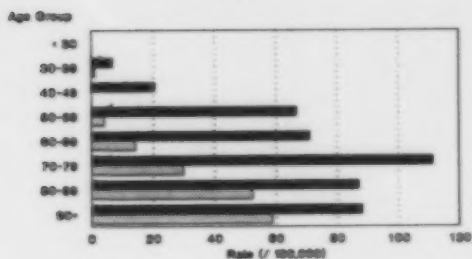
INCIDENCE & MORTALITY 1989

Female Genital Organs

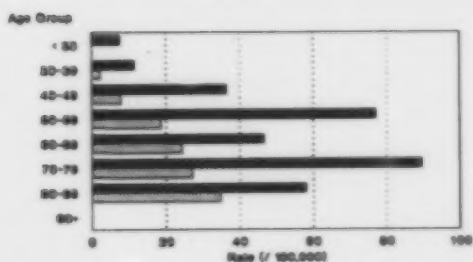
Cervix



Uterus



Ovary



■ Incidence ▨ Mortality

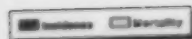
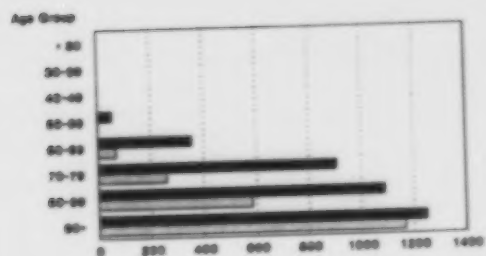
1989 TABLE XVb FEMALE GENITAL ORGANS

INCIDENCE

Uterus- Corpus Etc. (Except Cervix)			Ovaries, Fallopian- Tubes, Broad Ligaments & Other Genital Organs		
	N	Rate		N	Rate
Under 30	0	0.0	Under 30	19	7.7
30-39	6	6.9	30-39	10	11.6
40-49	13	20.6	40-49	23	36.5
50-59	32	66.8	50-59	37	77.2
60-69	35	71.1	60-69	23	46.7
70-79	41	111.4	70-79	33	89.7
80-89	15	87.2	80-89	10	58.1
90 and over	3	88.2	90 and over	0	0.0
Age not stated	0	0.0	Age not stated	1	0.0
TOTAL	145	26.4	TOTAL	156	28.4

MORTALITY

Uterus- Corpus Etc. (Except Cervix)			Ovaries, Fallopian- Tubes, Broad Ligaments & Other Genital Organs		
	N	Rate		N	Rate
Under 30	0	0.0	Under 30	0	0.0
30-39	1	1.1	30-39	2	2.3
40-49	0	0.0	40-49	5	7.9
50-59	2	4.1	50-59	9	18.7
60-69	7	14.2	60-69	12	24.3
70-79	11	29.8	70-79	10	27.1
80-89	9	52.3	80-89	6	34.8
90 and over	2	58.3	90 and over	0	0.0
Age not stated	0	0.0	Age not stated	0	0.0
TOTAL	32	5.8	TOTAL	44	8.0

INCIDENCE & MORTALITY 1989**Prostate**

1989 TABLE XVIa MALE GENITAL ORGANS

INCIDENCE

All Organs	N	Rate	Prostate	N	Rate
Under 30	13	5.1	Under 30	0	0.0
30-39	3	3.5	30-39	0	0.0
40-49	4	6.3	40-49	0	0.0
50-59	31	66.1	50-59	25	53.3
60-69	155	363.0	60-69	152	355.9
70-79	256	920.9	70-79	252	906.5
80-89	111	1,099.0	80-89	110	1,089.1
90 and over	15	1,250.0	90 and over	15	1,250.0
Age not stated	0	0.0	Age not stated	0	0.0
TOTAL	588	110.1	TOTAL	554	103.7

MORTALITY

All Organs	N	Rate	Prostate	N	Rate
Under 30	0	0.0	Under 30	0	0.0
30-39	2	2.3	30-39	0	0.0
40-49	1	1.5	40-49	0	0.0
50-59	1	2.1	50-59	1	2.1
60-69	29	67.9	60-69	29	67.9
70-79	73	262.5	70-79	72	259.9
80-89	59	584.1	80-89	59	584.1
90 and over	15	1,250.0	90 and over	14	1,166.6
Age not stated	0	0.0	Age not stated	0	0.0
TOTAL	180	33.6	TOTAL	175	32.7

1989 TABLE XVIIb MALE GENITAL ORGANS

INCIDENCE

Other Genital Organs	N	Rate
Under 30	13	5.1
30-39	3	3.5
40-49	4	6.3
50-59	6	12.8
60-69	3	7.0
70-79	4	14.4
80-89	1	9.9
90 and over	0	0.0
Age not stated	0	0.0
TOTAL	34	6.4

MORTALITY

Other Genital Organs	N	Rate
Under 30	0	0.0
30-39	2	2.3
40-49	1	1.5
50-59	0	0.0
60-69	0	0.0
70-79	0	3.5
80-89	1	10.1
90 and over	1	83.3
Age not stated	0	0.0
TOTAL	5	0.9

1989 TABLE XVIIa CANCER INCIDENCE - BY SITE*

ICDA 9th Rev.	Site	Male	Female	Total
140	Lip	34	14	48
141	Tongue	15	7	22
142	Salivary Glands	2	6	8
143	Gums	1	2	3
144	Floor of the Mouth	14	8	22
145	Other Parts of Mouth	10	8	18
146	Oropharynx	11	4	15
147	Nasopharynx	1	4	5
148	Hypopharynx	12	0	12
149	Pharynx Unspecified	2	0	2
150	Oesophagus	29	15	44
151	Stomach	85	46	131
152	Small Intestines	10	6	16
153	Large Intestines	243	246	489
154	Rectum and Rectosigmoid Junction	131	101	232
155	Liver and Intrahepatic Ducts	23	9	32
156	Gall Bladder and Extrahepatic Ducts	10	20	30
157	Pancreas	57	53	110
158	Peritoneum and Retroperitoneal Tissue	4	8	12
159	Digestive - N.O.S.	1	6	7
160	Nose, Nasal Cavities, Ear and Accessory	3	2	5
161	Larynx	29	8	37
162	Trachea, Bronchus and Lung	461	242	703
163-165	Other and Unspecified Respiratory Organs	12	3	15
170	Bone	6	8	14
171	Connective Tissue	11	15	26

* Unspecified tumors are not included.

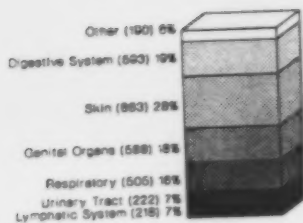
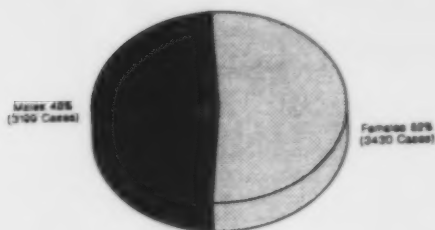
1989 TABLE XVIIIb CANCER INCIDENCE - BY SITE*

ICDA 9th Rev.	Site	Male	Female	Total
172	Malignant Melanoma of Skin	32	55	87
173	Malignant Neoplasm of Skin	851	751	1,602
174-175	Breast	9	655	664
179-182	Uterus-Corpus Except Cervix	-	145	145
180,233.1	Cervix Uteri	-	466	466
183	Ovary, Fallopian Tubes and Broad Ligaments	-	104	104
184,236.1	Other Female Genital Organs	-	40	40
185	Prostate	554	-	554
186	Testis	24	-	24
187	Other Male Genital Organs	6	-	6
188	Bladder	152	58	210
189	Other and Unspecified Urinary Organs	72	48	120
190	Eye	4	10	14
191	Brain	47	28	75
192	Other Parts of Nervous System	2	2	4
193	Thyroid Gland	8	29	37
194,164.0	Endocrine Gland	13	11	24
195-9	Other and Unspecified Sites	86	95	181
200	Lymphasarcoma and Reticulosarcoma	43	51	94
201	Hodgkins Disease	18	12	30
202	Other Lymphomas (Reticulosis)	50	51	101
203	Multiple Myeloma	36	22	58
204-8	Leukaemia	71	46	117
238.4	Polycythemia Vera	4	7	11
289.0	Myelofibrosis	0	2	2
Total - All Sites		3,299	3,529	6,828

* Unspecified tumors are not included.

ALL SITES 1989

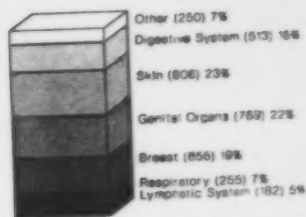
Incidence



Males

Other (# Cases):

Buccal Cavity ... 102
 Thyroid ... 16
 Brain ... 47
 Connective Tissue ... 11
 Bone ... 8
 Breast ... 9



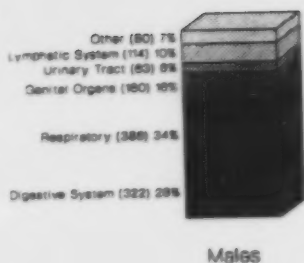
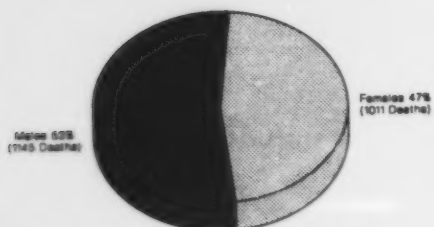
Females

Other (# Cases):

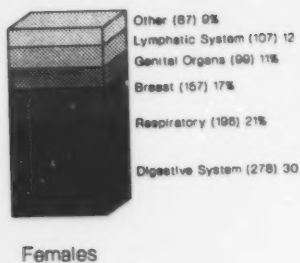
Buccal Cavity ... 63
 Thyroid ... 41
 Brain ... 28
 Connective Tissue ... 14
 Bone ... 8
 Urinary Tract ... 108

ALL SITES 1989

Mortality



Other (# Deaths):
 Buccal Cavity .. 28
 Breast .. 3
 Skin .. 12
 Brain .. 23
 Thyroid .. 3
 Bone .. 6
 Connective Tissue .. 8

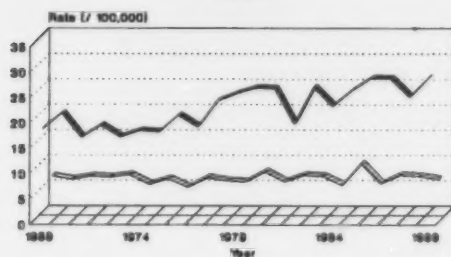


Other (# Deaths):
 Buccal Cavity .. 8
 Urinary Tract .. 36
 Skin .. 11
 Brain .. 19
 Thyroid .. 3
 Bone .. 3
 Connective Tissue .. 7

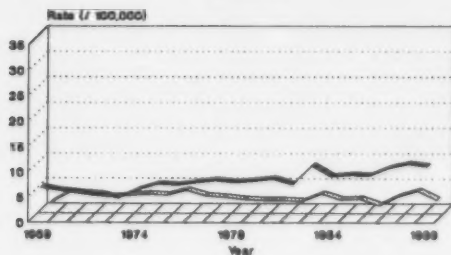
20-YEAR TRENDS

Bladder

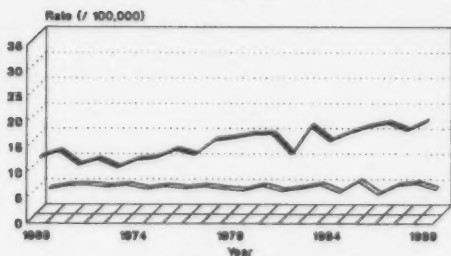
Males



Females



Total Population

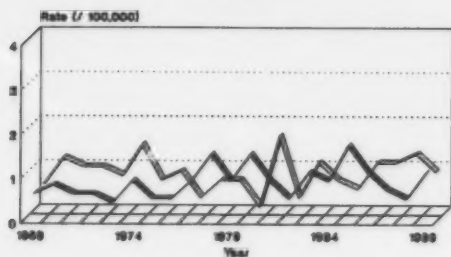


Incidence Mortality

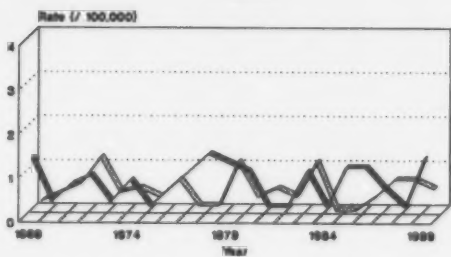
20-YEAR TRENDS

Bone

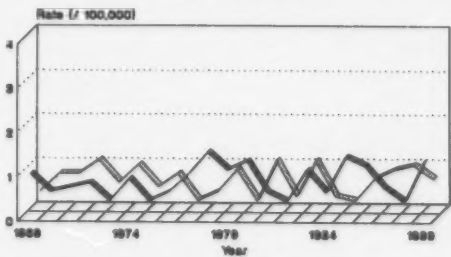
Males



Females



Total Population

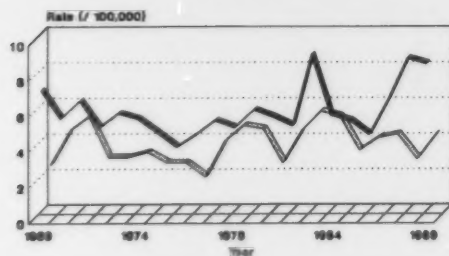


Incidence Mortality

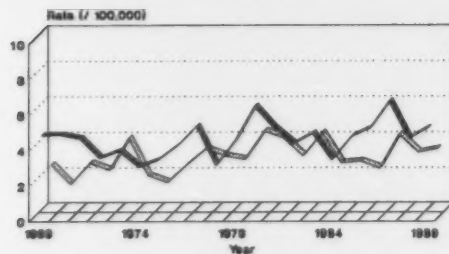
20-YEAR TRENDS

Brain

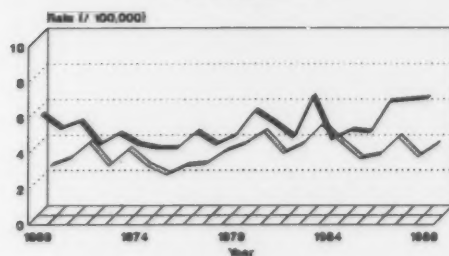
Males



Females



Total Population

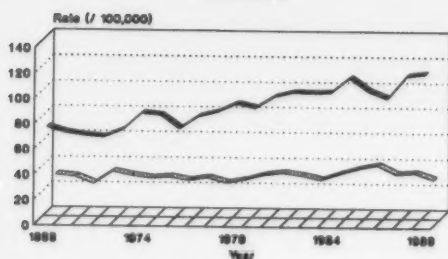


Incidence Mortality

20-YEAR TRENDS

Breast

Females

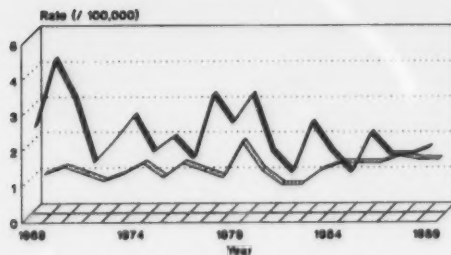


Incidence Mortality

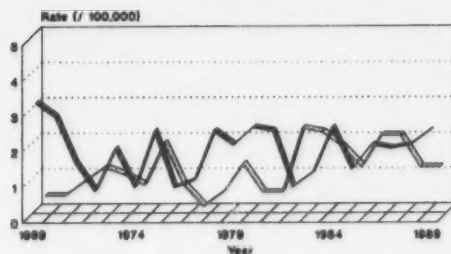
20-YEAR TRENDS

Connective Tissue

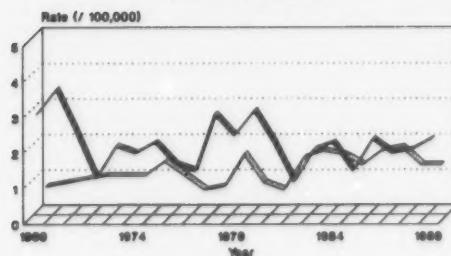
Males



Females



Total Population

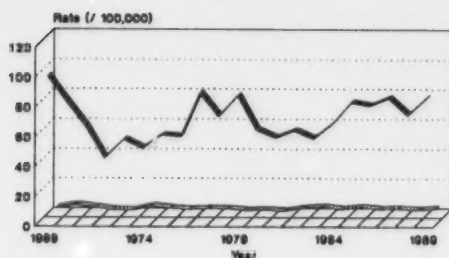


Incidence Mortality

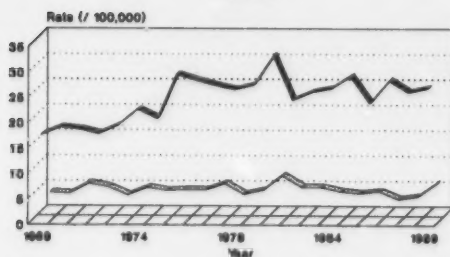
20-YEAR TRENDS

Genital Organs: Females

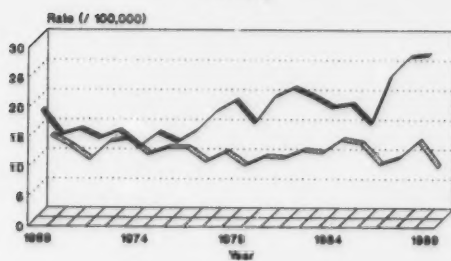
Cervix



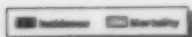
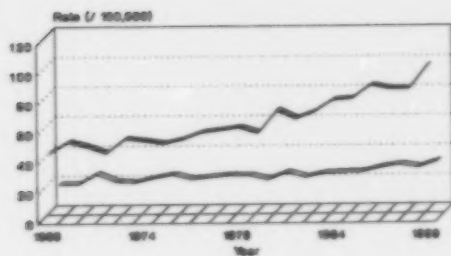
Uterus



Ovary



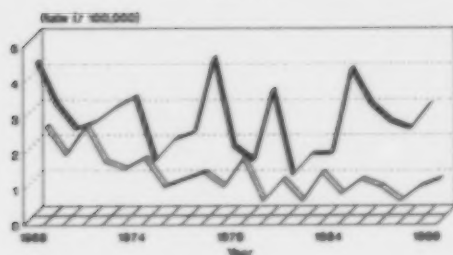
Incidence Mortality

20-YEAR TRENDS**Genital Organs: Males****Prostate**

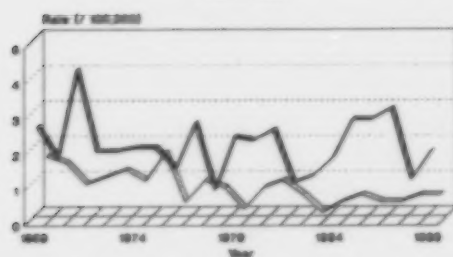
20-YEAR TRENDS

Hodgkins Disease

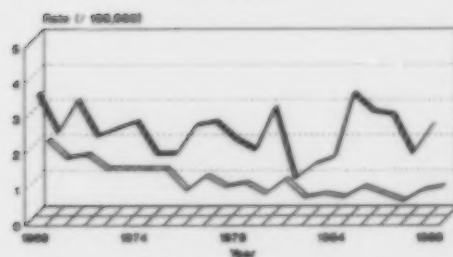
Males



Females



Total Population

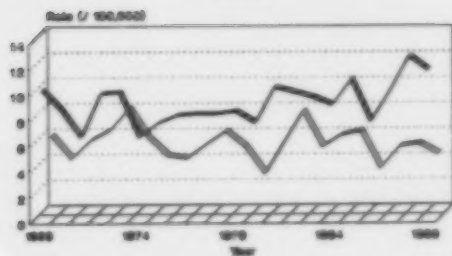


Incidence Mortality

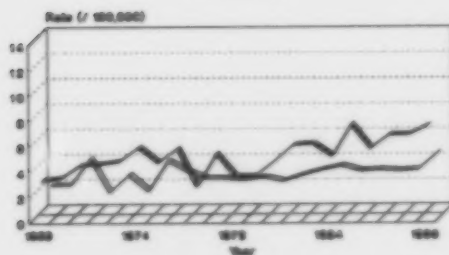
20-YEAR TRENDS

Kidney

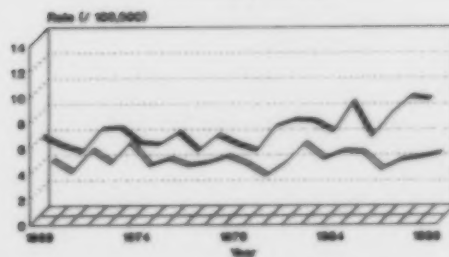
Males



Females



Total Population

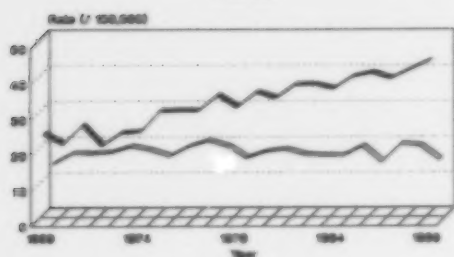


Incidence Mortality

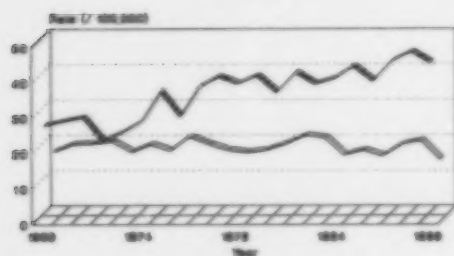
20-YEAR TRENDS

Large Bowel

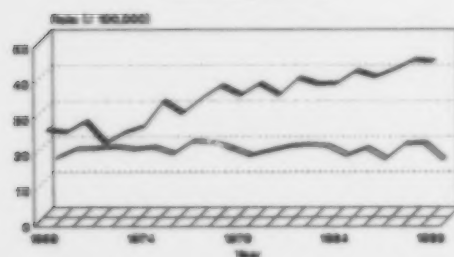
Males



Females



Total Population

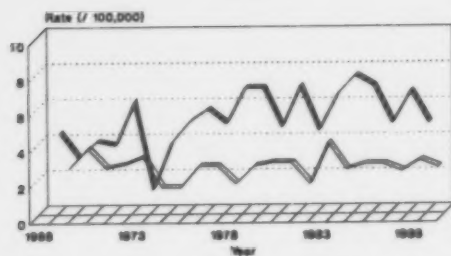


Incidence Mortality

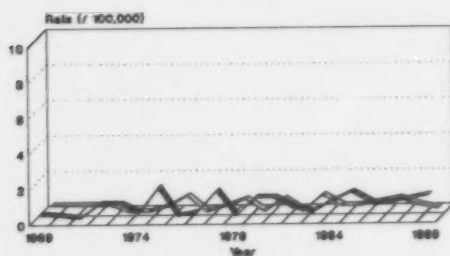
20-YEAR TRENDS

Larynx

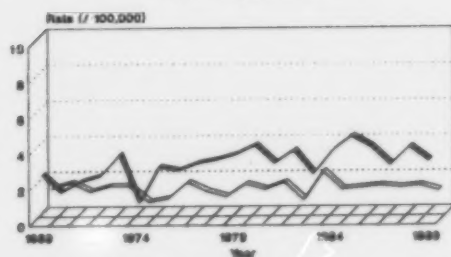
Males



Females



Total Population

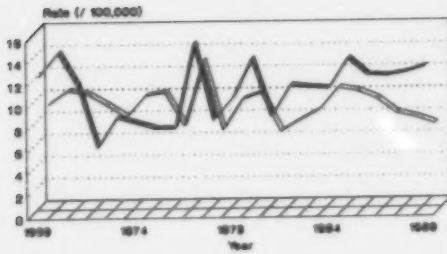


Incidence Mortality

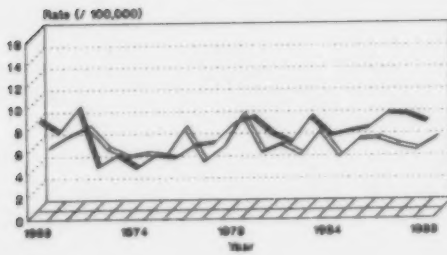
20-YEAR TRENDS

Leukaemia

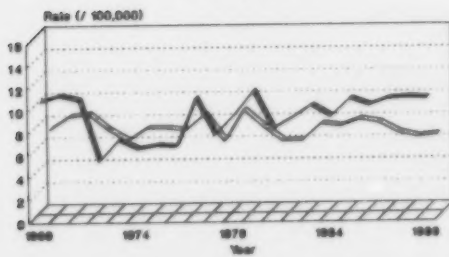
Males



Females



Total Population

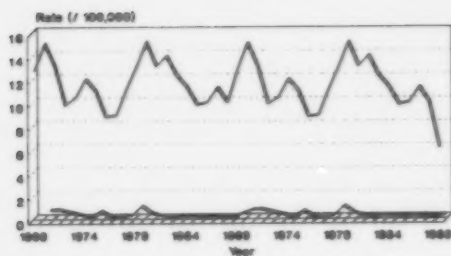


Incidence Mortality

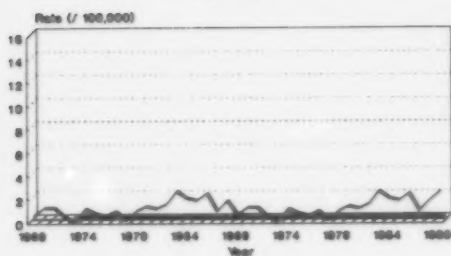
20-YEAR TRENDS

Lip

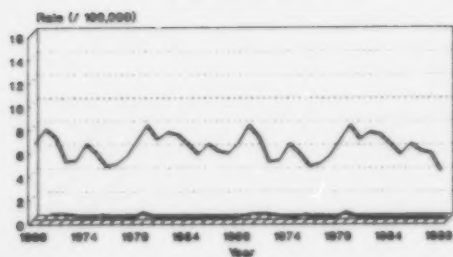
Males



Females



Total Population

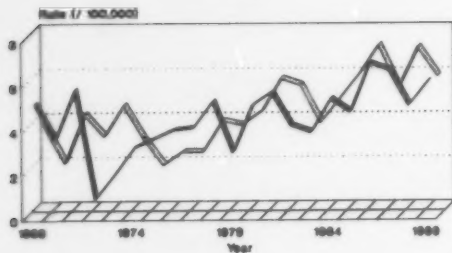


Incidence Mortality

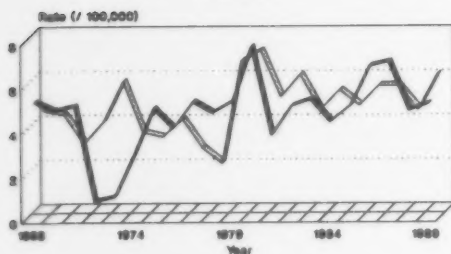
20-YEAR TRENDS

Liver

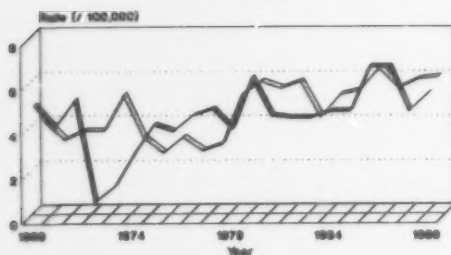
Males



Females



Total Population

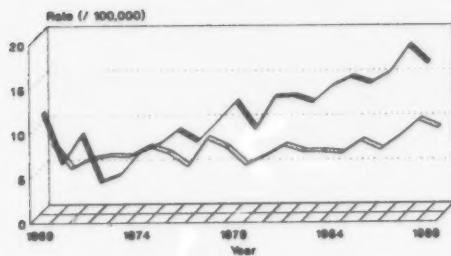


Incidence Mortality

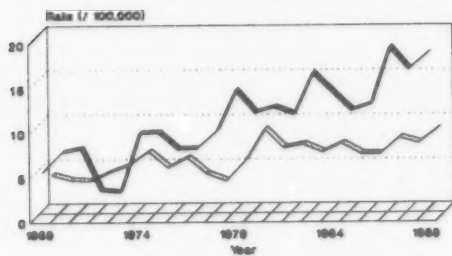
20-YEAR TRENDS

Lymphomas

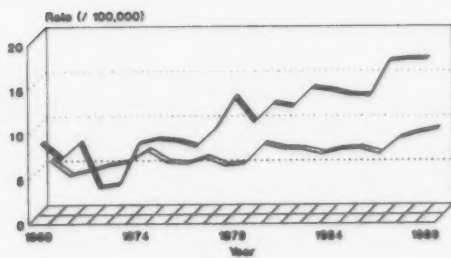
Males



Females



Total Population

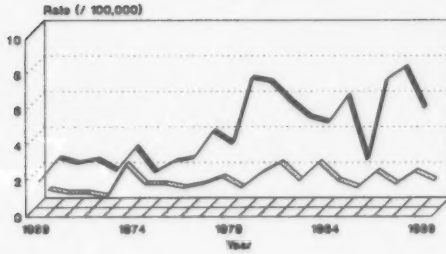


Incidence Mortality

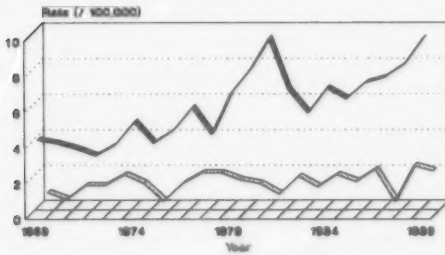
20-YEAR TRENDS

Melanoma

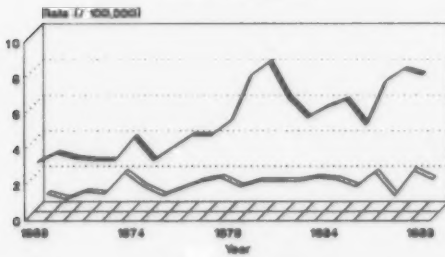
Males



Females



Total Population

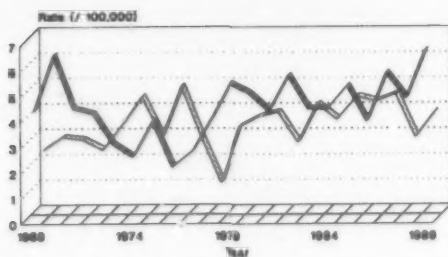


Incidence Mortality

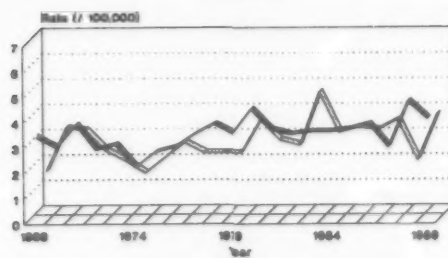
20-YEAR TRENDS

Multiple Myeloma

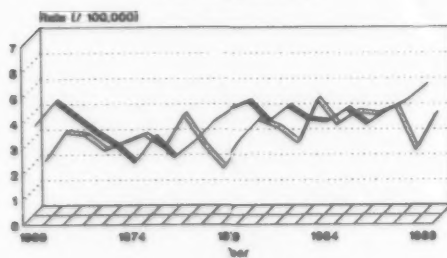
Males



Females



Total Population

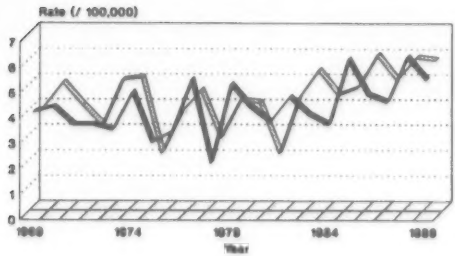


Incidence Mortality

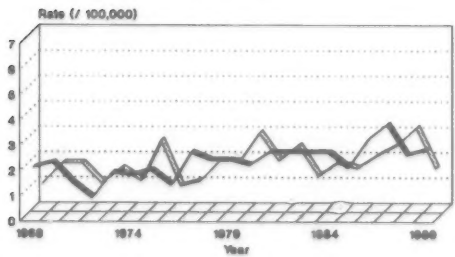
20-YEAR TRENDS

Oesophagus

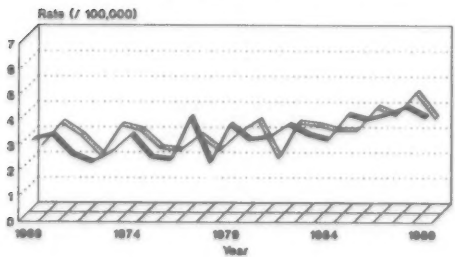
Males



Females



Total Population



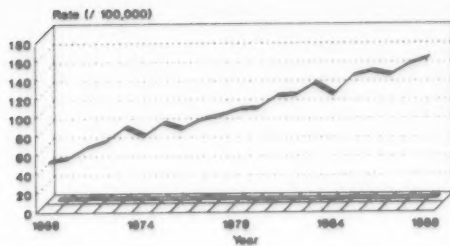
Incidence Mortality

20-YEAR TRENDS

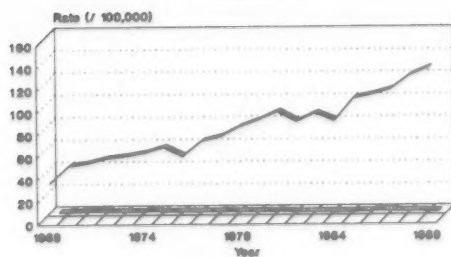
Other Malignant Neoplasms

Skin:

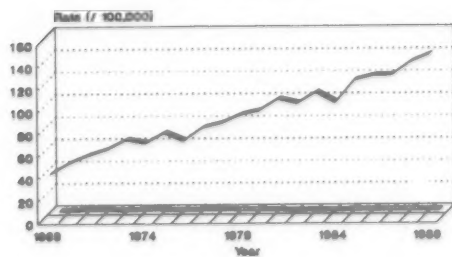
Males



Females



Total Population

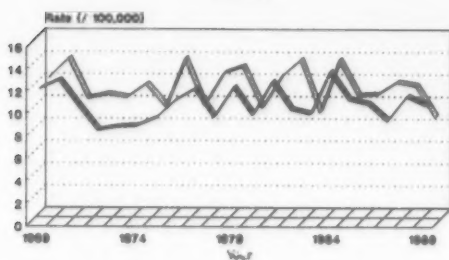


Incidence Mortality

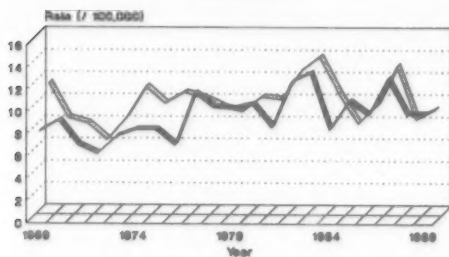
20-YEAR TRENDS

Pancreas

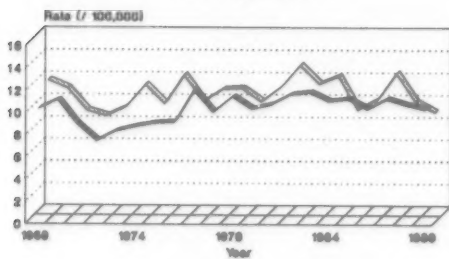
Males



Females



Total Population

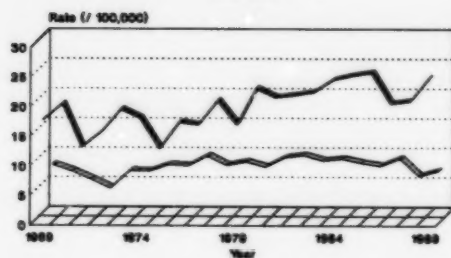


Incidence Mortality

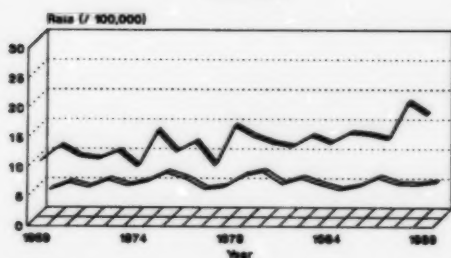
20-YEAR TRENDS

Rectum

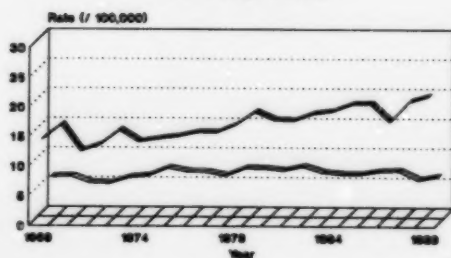
Males



Females



Total Population

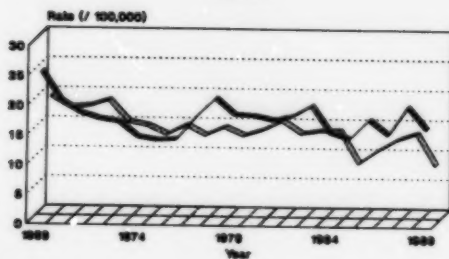


Incidence Mortality

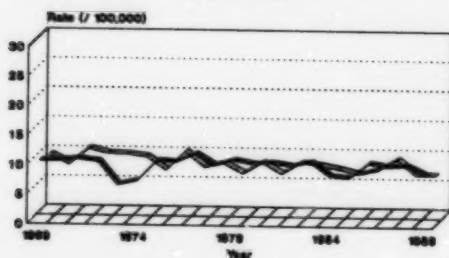
20-YEAR TRENDS

Stomach

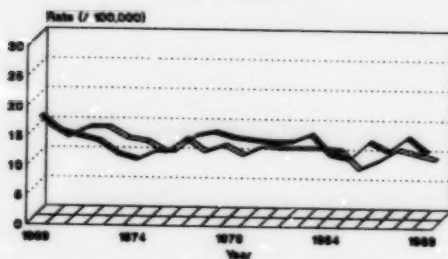
Males



Females



Total Population

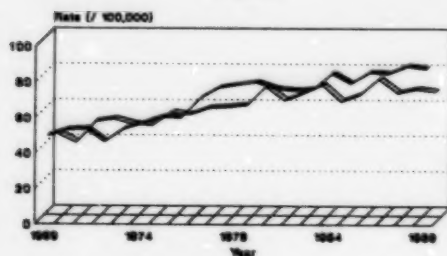


Incidence Mortality

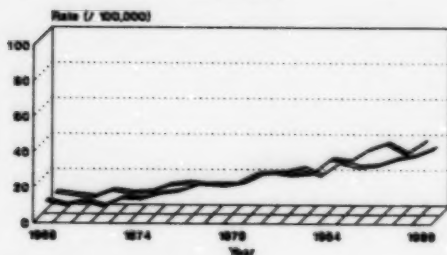
20-YEAR TRENDS

Trachea, Bronchus & Lung

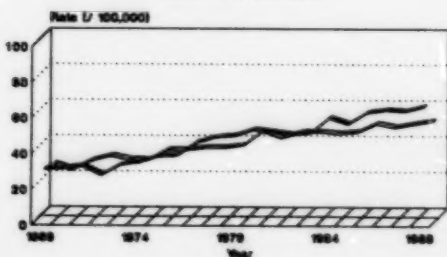
Males



Females



Total Population

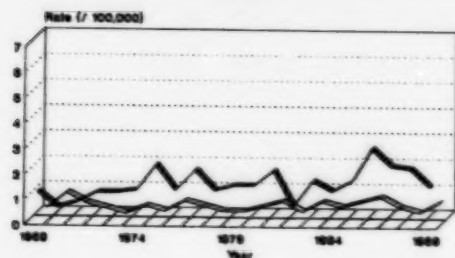


Incidence Mortality

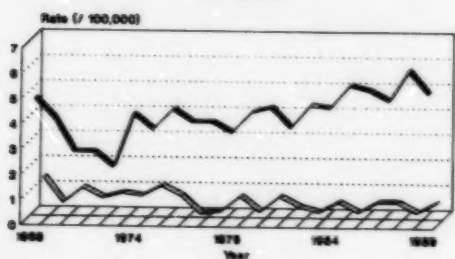
20-YEAR TRENDS

Thyroid

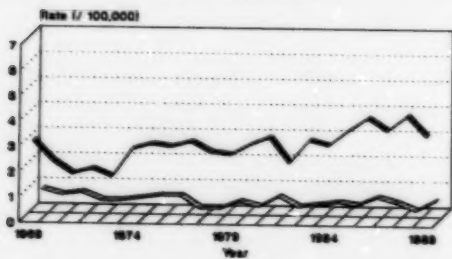
Males



Females



Total Population



Incidence Mortality

RESEARCH GUIDELINES

Please use the form at the end of this section to communicate your needs.

1. Projects must be approved by the Director, with the advice of the Records & Registry Research Advisory Committee according to the following criteria:
 - i. The goals of the Cancer Registry.
 - ii. The adequacy of research design.
 - iii. Personnel, computer & other resource demands.
 - iv. Current operational demand.
2. Projects may be of three types:
 - i. **Operational:**
Necessary to the day-to-day function of the Manitoba Cancer Treatment and Research Foundation (MCTRF), eg. site reviews, radiotherapy utilization studies etc. These may be undertaken only by MCTRF staff in their fields of expertise.
 - ii. **Research:**
Open to all qualified researchers. Must be approved by the Ethics Committee, University of Manitoba. Any appropriate utilization of the resource is encouraged. In particular natural history, epidemiology and econometric studies are encouraged. Clinical studies may also be reviewed by the Protocol Review Committee of the MCTRF.
 - iii. **Computer applications:**
The computer resource is available to MCTRF personnel for analytic, process control and other applications as may be deemed feasible from time-to-time by the participants.
3. Pilot projects and feasibility studies are encouraged and may be supported by Records & Registry staff as resources permit.
4. All projects must be reviewed by the Records & Registry staff for statistical and computational feasibility prior to review by the Director. Applicants should view this process as consultative, intended to minimize effort and maximize utilization of the resource.
5. For all projects, strict confidentiality must be assured at all times. All persons accessing the Registry will be required to sign an Oath of Confidentiality.

6. While the primary objective of the Records and Registry process review is to assure efficient and proper use of the Registry and confidentiality, research proposals which have not been externally funded and/or have not undergone independent peer review, may also be examined as to scientific merit. Clearly, projects involving extensive staff and resource commitments will be closely reviewed.
7. All projects will be prioritized by the Director. The operational requirements of the Registry will always take precedence over research activity and may, from time-to-time, occupy all available resources. Staff will attempt to schedule research projects so as to minimize such inconveniences to the investigators. Prioritization guidelines will include:
 - i. Size of staff and computer requirements.
 - ii. Scientific merit as it relates to the goals of the Registry.
 - iii. Project deadline.
 - iv. Funding status of the project.
8. Projects of type (ii) & (iii), Item 2, will be charged for resource utilization at rates to be established from time-to-time. These charges may include:
 - i. Statistical consultation time.
 - ii. Programming & programming assistance.
 - iii. Computer utilization time.
 - iv. Records and Registry staff time.
 - v. Consumables, telephone charges etc..
9. The data remain the property of the MCTRF, and users must acknowledge the Registry in publications and presentations.
10. Researchers who require consultation will be encouraged to use the MCTRF resource for data analysis to maximize utilization of the experience and expertise of MCTRF staff.
11. MCTRF Records & Registry will assume no responsibility for the accuracy of data reported by investigators using the Registry, or for any interpretations thereof.
12. Researchers must agree to submit to the Director all papers and reports for publication for review prior to distribution or publication to assure that the anonymity of respondents is preserved and that any reference to the Registry is factually correct.



Manitoba Cancer Treatment and Research Foundation
M.R. MacCHARLES UNIT
100 Olivia Street @ Winnipeg, Canada R3E 0V9

Oncology Records & Registry

Request for Data - Form B
(For use by non-MCTRF staff only)

REQUESTOR: _____ DATE: _____

AFFILIATION/APPOINTMENT _____

CONTACT ADDRESS: _____

PHONE NUMBER: _____

DATA REQUESTED: _____

_____PURPOSE OF STUDY: _____
(eg: lecture,
publication, etc) _____

DATE REQUIRED: _____

- SPECIAL REQUESTS:
1. Inclusion of patient identifiers. _____
 2. Tabular Data. _____
 3. Direct access to MCTRF medical records. _____
 4. Authorization to contact referring dr(s) _____
 5. Authorization to contact patients. _____

I agree to abide by the Manitoba Cancer Treatment and Research Foundation Requirements for Release of Information from the Manitoba Cancer Treatment and Research Foundation Registry. I understand that the information I may have access to is confidential and is not to be communicated to anyone in any manner except as outlined.

SIGNED: _____ DATE: _____

FOR DEPARTMENT USE ONLY

APPROVAL OF REQUEST:

SIGNED: _____ DATE: _____

CODES:



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